ENGINEERING NEWS-RECORD

A McGRAW-HILL PUBLICATION

How to drive a "Bargain" in trenches

Old fashioned sheeting was difficult to drive and costly because new sheeting generally had to be used on every job. Then Armco engineers saw how a little sheeting sense would make profit dollars for contractors and other construction men. They developed Armco Steel Sheeting.

This practical sheeting has a small displacement for fast driving. Corrugated metal design provides ample strength without excess weight. Best of all, Armco Steel Sheeting can be used again and again. The sturdy sections pull easily without damage and save the cost of new sheeting on succeeding jobs.

Between jobs there is no costly storage problem. Units nest together conveniently in a small area. Light weight reduces handling and transportation costs.

Making products simpler and more efficient has been a prime goal at Armco for more than 40 years. So has the designing of products to meet specific needs. Today you can bring your drainage and construction problems to Armco with full assurance you will receive all the benefits of long experience, extensive research, and a real interest in helping you solve these problems.

Armco has a complete range of engineered products and convenient, authoritative data to help you. If your problem is difficult or unusual, why not talk it over with us.

ARMCO

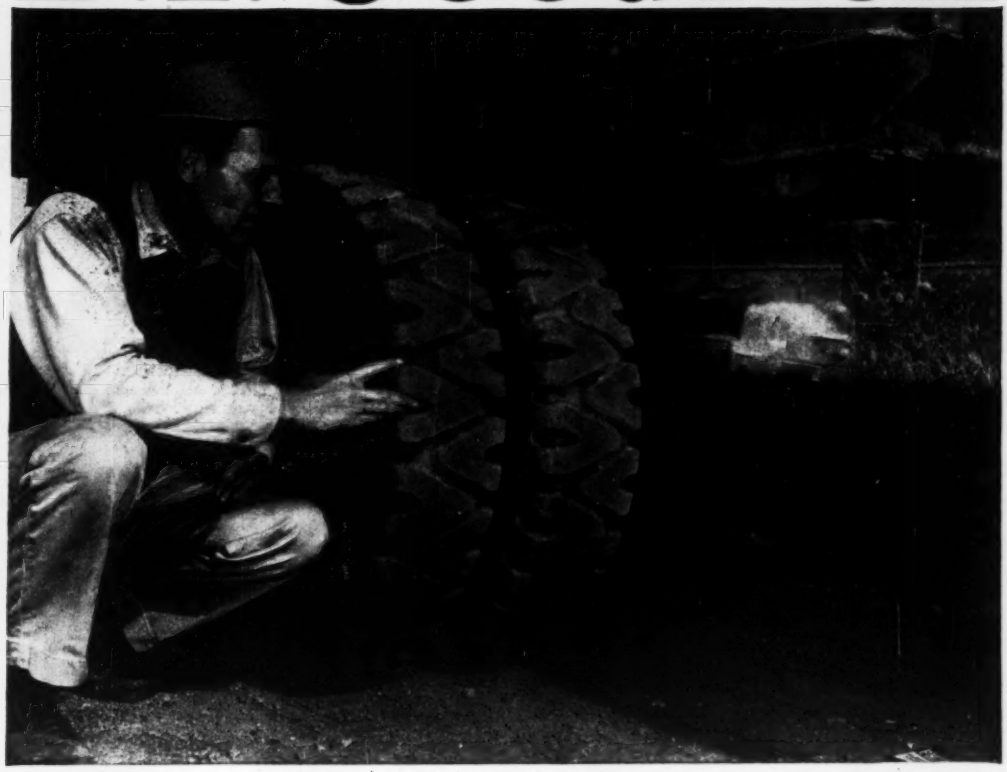
ARMCO DRAINAGE & METAL PRODUCTS, INC.

MIDDLETOWN, OHIO • OFFICES AND PLANTS IN PRINCIPAL CITIES

SUBSIDIARY OF ARMCO STEEL CORPORATION

Berkeley, California ★ Middletown, Ohio ★ South Bend, Indiana ★ Baltimore, Maryland
Denver, Colo. ★ Des Moines, Iowa ★ Atlanta, Ga. ★ Topeka, Kansas ★ Houston, Texas
Minneapolis, Minnesota ★ Portland, Oregon ★ Washington, D. C. ★ Guelph, Ontario

B.F.Goodrich



These tires give less trouble —more recaps!

THE ARISS-KNAPP COMPANY of Oakland, California, is engaged in excavating and hauling dirt, rock and gravel in the San Francisco Bay area. They operate 5 semi-dump trucks, 9 regular dump trucks, 2 motor graders and 1 tractor-low-bed trailer. Hauling heavy loads over dirt, gravel, rock and a mixture of all types of roads, the drive wheels of these trucks are all equipped with B. F. Goodrich tires.

Grading contractors operate in all kinds of weather. When dirt surfaces are wet, traction is especially important. Ariss-Knapp has found that the BFG Universal tread offers extra safety. J. A. Wagnon, one of the drivers, says that he likes the way these tires grip and describes them as "really terrific" on all types of driving surfaces.

Then, too, the patented B. F. Goodrich *nylon shock shield* gives added safety . . . added miles. These strong, elastic nylon cords between the tread rubber and the cord body absorb and distribute shocks evenly. It's an exclusive BFG feature that's provided at no extra cost in all tires of 8 or more plies.

Contractors everywhere have found that B. F. Goodrich tires give maximum performance in all operations. They've found that they have fewer road delays and can recap more often. For any on or off-the-road service where extra traction and bruise resistance is necessary, see your local BFG dealer—or write for information. *The B. F. Goodrich Company, Akron, Ohio.*

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ENGINEERING NEWS-RECORD

Member ABP Member ABC

Volume 147 JULY 19, 1951 No. 3

WALDO G. BOWMAN
Editor

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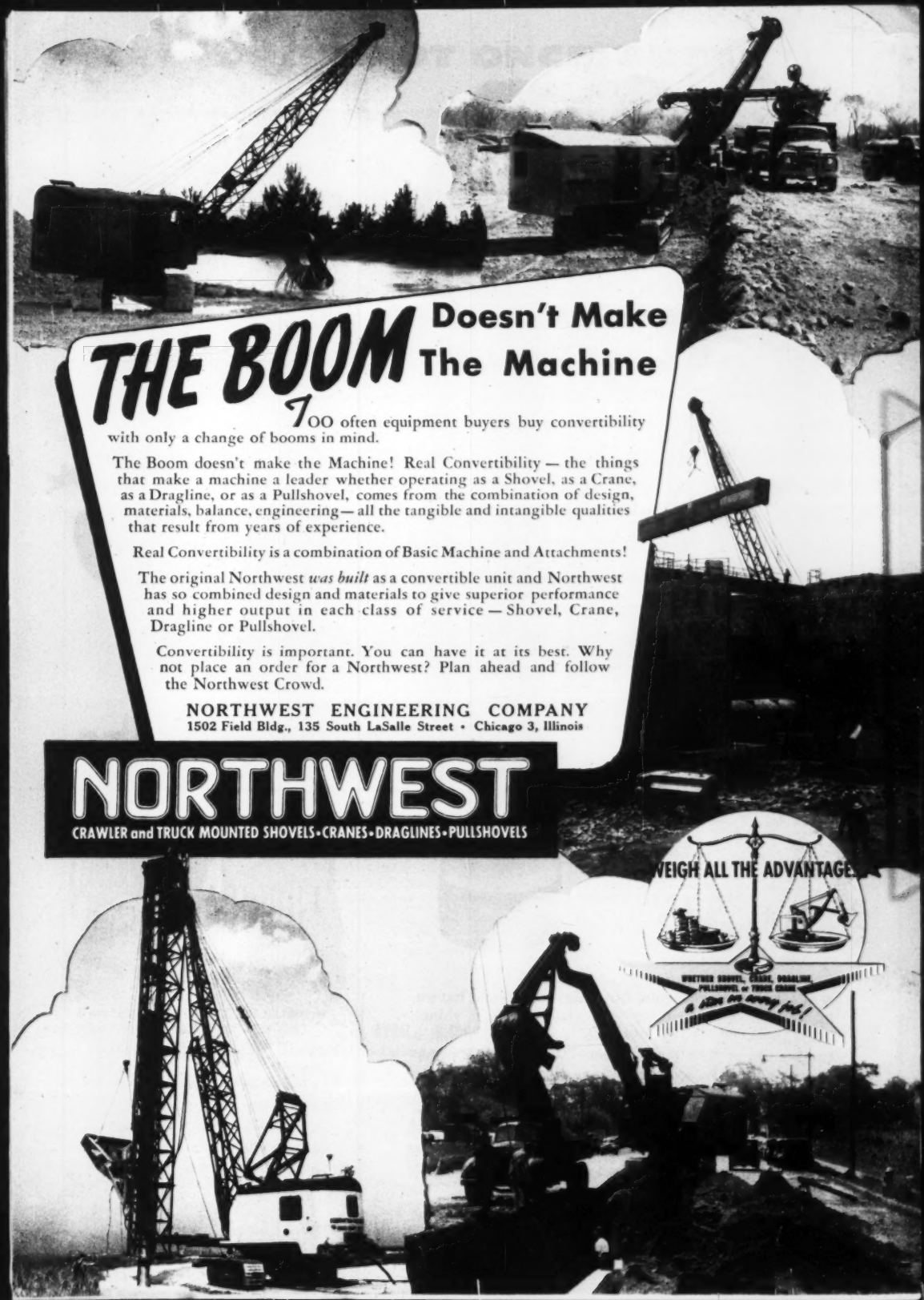
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TOO often equipment buyers buy convertibility with only a change of booms in mind.
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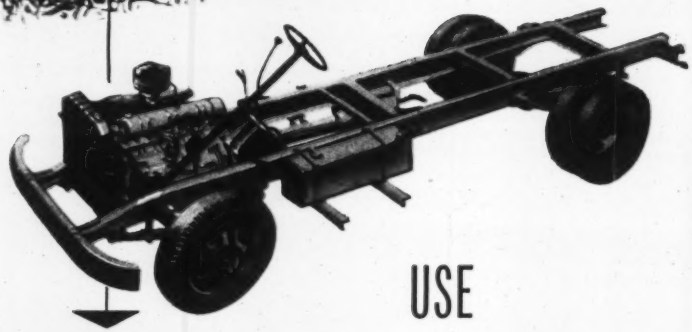

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A REALLY GOOD PRESSURE GUN lubricant should have a lot of the same features that characterize a rhino. Toughness . . . rugged strength . . . stability. That's Quaker State EXPP2 lubricant. Weather and water resistant, this smooth lubricant is made from a unique 100% pure Pennsylvania grade base oil. It's the strongest . . . most dependable pressure gun lubricant money can buy.

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- Quaker State EXPP2 Lubricant
- Quaker State Universal Joint Lubricant
- Quaker State Waterproof Lubricant
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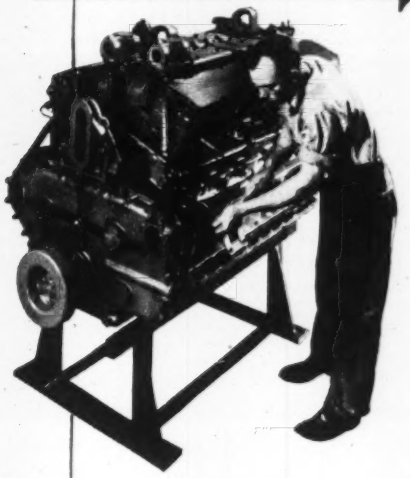
BUILT NOT ONCE BUT TWICE!



Cummins is the custom-builder of the Diesel industry. Each engine is built to *fit the job*—and the individual piece of equipment in which it is to be installed. And *every* Cummins engine is built *twice*. First, each engine is assembled, run-in tested. Then it is disassembled completely, and inspected. Finally it is reassembled and tested *again*. This extra care in precision building, Cummins exclusive fuel system, efficient parts and service organization . . . mean *less* "down-time" and *more* power and profits for Cummins users. *See your Cummins dealer.*

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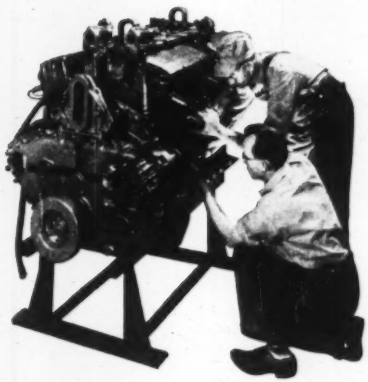

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Grand Champ

Carroll Brown's big red TD-24 wins out on Colorado's "toughest road construction job ever!"

This summer, tourists welcomed the new wonder highway to the gleaming trout lakes atop Grand Mesa. But the men who built it called it "The Snake Pit"—a two-mile-high inferno of falling rocks, dynamite-proof basalt, and even prehistoric ice on the high north slopes where the sun never shines.

They had to clear out 300,000 cubic yards of snow before they could start building. They could work only from June to October each year—and they had to make a two-hour trip to the job each day because the air on Grand Mesa was so thin men couldn't stay at the job site.

It took five years and a million dollars to build six miles of highway—nearly a year and two hundred thousand dollars a mile. Carroll Brown, of the Brown Construction Company, finally finished the job with flying colors, and he came up with this conclusion:

"On this most difficult project our company ever tackled, under the severest conditions we ever encountered, the International TD-24 tractor definitely outperformed all competitive equipment."

Once again the big red crawler had proved itself the Champ. The Champ for tough, dogged, never-give-up guts—148 maximum horsepower at the drawbar, 8 speeds forward, 8 reverse, Planet Power Steering with finger-tip control.

Ask your International Industrial Distributor for the real low-down on the TD-24. It's backed by complete parts supplies and service facilities for the hard-working years ahead. Get the whole story. You'll be a TD-24 man from then on in!

INTERNATIONAL HARVESTER COMPANY, CHICAGO 1, ILLINOIS

INTERNATIONAL HARVESTER

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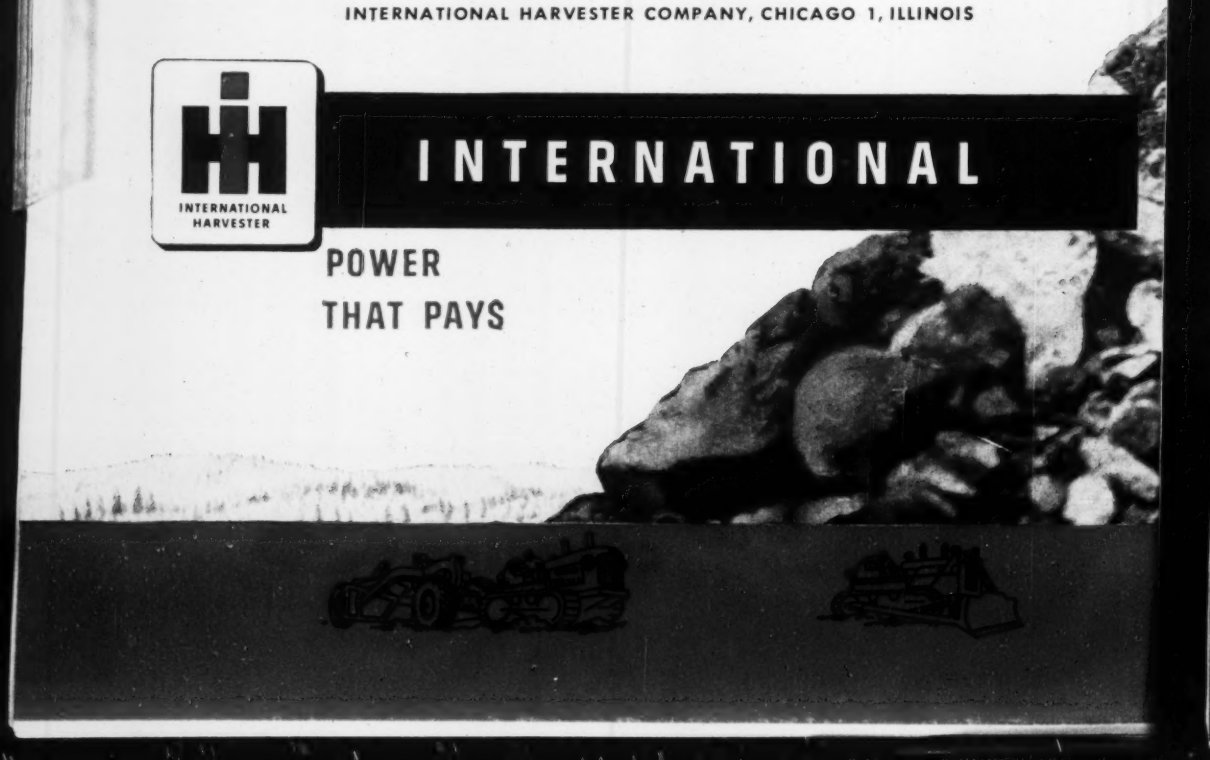
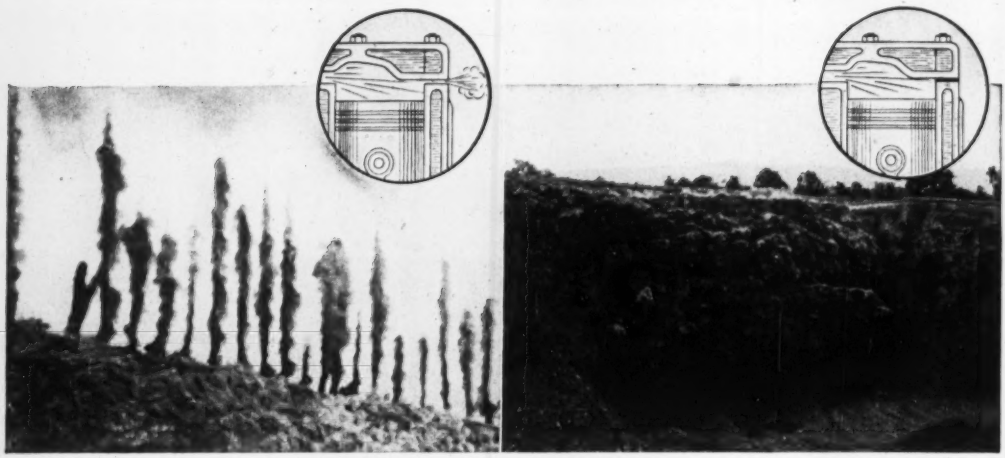
POWER THAT PAYS



# of Grand Mesa

TWO MILES HIGH on Grand Mesa, an International TD-24 dozes more rock with more speed on new million-dollar highway. Volcanic rock, dense-grained basalt proved a pushover for the big red Champ.

Power Wasted! Power Working!



Like a "blown" gasket, an ordinary blast wastes the power that **ROCKMASTER** *blasting keeps on the job!*

THE HAMMER, hiss, and whistle of a "blown" gasket means a lot of power is going to waste instead of working on the piston. In the same way, the objectionable noise that often comes from blasting usually means that explosives power is being wasted instead of working on the rock. And that wasted gas is often visible as "geysers" of smoke or wild flying rock.

ROCKMASTER blasting keeps blasting power—the explosives gas—well confined and working on the rock. ROCKMASTER blasting gives a smooth flow of power that means control over breakage and throw never before possible—with far less noise and vibration!

Your job may call for two, three, or even all sixteen ROCKMASTER milli-second delay electric blasting caps. We help you select them to fit a particular job in quarry, strip pit, mine, construction . . . on the surface or underground. Drill pattern is adjusted to fit the system, often with substantial savings in drilling and dynamite.

Write for free ROCKMASTER "16" booklet which includes diagrams for typical loadings. And remember that our technicians will be glad to assist you in applying ROCKMASTER to your operations.

ROCKMASTER: Reg. U. S. Pat. Off.

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"Everything for Blasting"

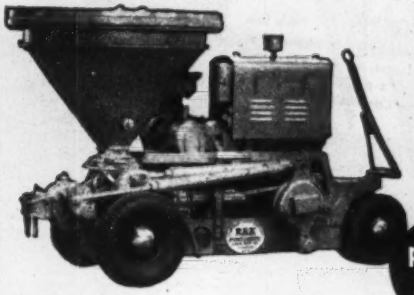
CHEMICALS ATLAS EXPLOSIVES

ATLAS POWDER COMPANY, Wilmington, Del. • *Offices in principal cities* • *Cable Address—Atpowco*

You'll profit from these "cutting remarks"

. . . on how Rex Pumpcrete® and pipe line flexibility cut concrete placement costs on buildings of all types.

pumpcrete CUTS direct labor cost
Concrete is transported, elevated and placed in one operation. No rehandling . . . no buggying needed.



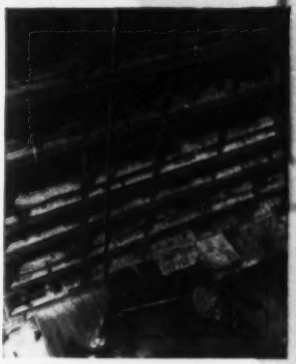
pumpcrete CUTS preparatory costs
Pumpcrete and pipe line flexibility eliminate need for many access structures such as road building and maintenance . . . towers and scaffolding, etc.

pumpcrete CUTS "dead time"
Delivers concrete in a steady flow. Often eliminates overtime caused by crews having to wait to avoid interfering with placement operations.

Just Look at these examples!

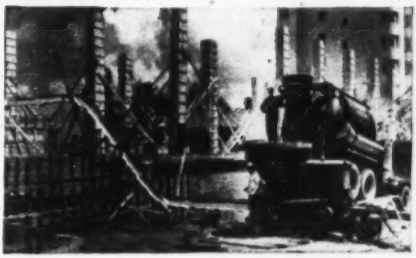
pumpcrete CUTS non-productive moving time
No need to move mixing equipment from place to place. Spot Pumpcrete in the one best location for concrete delivery.

Here Pumpcrete is being used to place all concrete on a four-story steam generating plant. On this job there are many big pours in a small area. An important advantage of the Pumpcrete is its steady pumping which permits small crews to handle large volumes with little dead time. Better scheduling of all operations on the job is possible. Overall efficiency is greatly increased.



Nine stories high . . . 160 feet up! That's how high the Rex Pumpcrete lifted the concrete on this building job. Pumpcrete is ideal for pouring floors on buildings several stories high. As one floor is completed, the pipe line is just extended on the job. Expensive preparatory tower work, buggies and buggy runs and costly moving of such equipment are eliminated.

On this job the Pumpcrete, being charged by a Rex Hi-Discharge Moto-Mixer, pours the flooring of a large apartment building. An important advantage here was the fact the steel setting and forming crews were able to erect the tall column forms shown without interference from the concreting crews pouring the slab. Columns were poured when second floor was constructed.



Ask your local Rex Distributor to give you the "cutting details" of concrete by pipe line. Or, if you prefer, write to Chain Belt Company, 1633 W. Bruce Street, Milwaukee 4, Wis.

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CONSTRUCTION MACHINERY . . .

PUMPCRETE IS THE REGISTERED TRADE-MARK OF CHAIN BELT COMPANY

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Acclaimed the Country Over

TENNESSEE . . . "The TraveLoader is easier to operate and I like high travel speed, the adjustable gathering molds and the good operator vision"—State Highway Maintenance Engineer.

OHIO . . . "Superior to any loader in the field—I like the full-floating feeder, the adjustable conveyor, cab location and the wide variety of working speeds," says County Maintenance Supt.

WISCONSIN . . . "We like the industrial-type engine, the heavy frame, the large tires and operator's position"—County Highway Commissioner.

MISSOURI . . . "The location of the cab affords a good view of feeder and conveyor—we also like the adjustable gathering molds," says State Highway Division Engineer.

CALIFORNIA . . . County Road Supt. likes the TraveLoader for its "loading capacity and ease and economy of operation."

DELAWARE . . . "We like the cab position and the conveniently-located controls. The best we've seen," says Contractor.

*Names of above users on request.

● When a machine wins the wholehearted endorsement of highway officials and construction men—all over the nation—in one year—it's got to be good . . . mighty good! That's the story of Adams' great new TraveLoader—the world's newest, fastest, most efficient windrow-loading machine.

Here's the only belt-type loader with a high, centrally-located control station—up out of the dust area—giving operator full, unobstructed vision in all directions, at all times—working or traveling.

The TraveLoader is self-propelled, self-feeding—picks up and loads any and all kinds of windrowed material—dirt, sod, gravel, sand, bituminous mix, scarified black top, snow, etc.—and does it faster and cheaper than any other machine or method.

Before buying any type of loader, ask your local Adams dealer about the new high-speed, high-performing TraveLoader—the perfect companion machine for Adams Motor Graders.

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Dig and dump . . . speed the cycle . . . take those shocks . . . *stay on the job*—that's the big order you give a hoist rope. To have it filled, put *Preformed* Yellow Strand Hoist Rope on your power shovel. Specify Lang Lay with Independent Wire Rope Core—6 x 19 for ropes up to and including 1″ in diameter, 6 x 41 for sizes 1⅛″ and larger.

In *Preformed* Yellow Strand, whatever the construction, internal stresses have been relaxed. You gain with longer rope life, fewer shutdowns for replacement, more production for your rope dollar. Call your B & B distributor now so you'll have a real *working* rope on hand when it's time to change your hoist, drag, scraper or other heavy-duty line.

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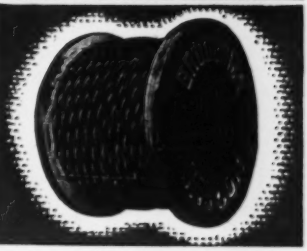

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- CHEMONITE resists termites and wood-decaying fungi.
- CHEMONITE is non-leaching, clean, odorless and paintable.
- CHEMONITE gives permanent protection to all wood products.
- Approvals: Federal and State specifications; American Association of Highway Officials; Los Angeles City Building Code.

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NEWS BRIEFS

• **Hush, hush!**—When residents of Toledo, Ohio, suffered flooded basements following a recent heavy downfall of rain, the street department received numerous calls for help. But one call could not be answered. It seems that George Hanf, the street department clerk, was asked by a woman to please send a pumper to her basement, to remove the overflow.

"Sure," Hanf said, "Where is it?"

"Well, I don't want any publicity," the woman replied. "If I gave my address, it might get into the newspaper."

• **Expensive vandals**—Many thousands of dollars and many hundreds of man hours are spent by the Pennsylvania Department of Highways annually for repair and replacement of mutilated roadside signs says Secretary of Highways Ray F. Smock. No. 1 offender is the chap with a gun who finds the signs irresistible targets. Nos. 2 and 3, 4 and 5 are those who cover the signs with crayon, disassemble, bend or tear them out by the roots, just for fun.

• **Water paradox**—St. Clairsville, Ohio, on the Ohio River, recently found itself with both too much and not enough water. A two-hour storm brought more than an inch of rain. The water backed up in Little McMahon's Creek and flooded waterworks pumps to a depth of 5 ft. With the pumps out of operation and the storage tank only half full, Mayor Brady Bradfield asked citizens to conserve water.

• **Portland cement tested**—The National Bureau of Standards offers a new standard fineness sample for the calibration of instruments used in testing portland cements and related materials. Portland Cement Standard Fineness Sample No. 114G, is applicable to the Wagner turbidimeter, the Blaine air-permeability fineness meter, and the No. 325 sieves. Whereas the various devices for measuring fineness can generally be calibrated from the constants of the instruments, the use of standard samples makes calibration easier, brings the results of tests in different laboratories into closer agreement. Orders should be sent to the National Bureau of Standards, Washington 25, D. C. Pay in advance. A 12-gram sample is $2.50, payable to the National Bureau of Standards. Specify both name and number of the sample.

• **Mysterious explosion**—The sheriff of Madison County, Ill., is investigating a dynamite explosion that wrecked $30,000 worth of earth-moving machinery near Troy recently. The explosion destroyed a tractor and dirt loader and a motor grader used by the Superior Excavating Co. of Bethalto in making an artificial lake for the Edwardsville chapter of the Illinois Federation of Sportsmen's Clubs. I. H. Neunaher, president of the company, said there was no labor trouble on the job.

• **Errant decimal point**—Chicago Sanitary District trustees are up in arms because of a misplaced decimal point. The tiny dot got lost in a $560,000 contract let last year to Santucci Construction Co. of Skokie for 18 sewer connections with the Racine pumping station. But Nick Santucci, president, quickly said a terrible mistake had been made. His estimate for the connection at 73d and Stony Island should have been $100,000—not $10,000, Santucci said. The trustees refused to move the decimal point despite arguments that Santucci will lose $90,000 on the job.

• **Builds house in an hour**—It took a crew of 16 men of the National Housing Co. of Dallas, Tex., just one hour and two minutes to assemble completely a 20 x 48 ft portable house in a demonstration before the Army Engineers, financial representatives, government officials and others. The company is headed by John Allen Boyle, an architect-builder of Denison, Tex., and George Butler of Houston. In World War II, Boyle built thousands of houses by the assembly line method, employing a peak of 3,000 workers. His new company employs 125.

• **Water vs. dust**—Voluntary dust-laying measures taken by a Sylvania, Ohio, resident failed to meet with the approval of motorists along U. S. Route 223 there recently. Concerned about dust from a road repair project, a householder fastened a garden hose to a chair in his yard and pointed the stream toward the highway. Several motorists caught the water full in the face before traffic came to a halt. By the time Constable Leslie Paschen arrived, more than 50 automobiles were lined up in both directions. He solved the problem by removing the hose and waiving the traffic on.

• **Hennepin Canal closed**—U. S. Army Engineers have closed the 75-mile Illinois and Mississippi canal, also known as the Hennepin Canal, only connecting link between the Illinois and the Mississippi rivers above the mouth of the Illinois. Built in 1892,

News Briefs . . .

the canal has 32 locks each 35 ft wide and 164 ft in length, providing a 7-foot channel—too small for the modern towboats and barges which use the Illinois Deep Waterway.

• **Something fishy**—Schools of fish, plus Yankee independence, are paying for a $50,000 school in a tiny Maine village. A mighty run of alewives, a species of herring, swarming up the river at Orland every spring is providing the gold to build school houses. This year $5,000 in profits from the sale of fish will go to reduce school house debt.

About a year ago the little town of fewer than 1000 persons started on the ambitious project of building and financing a modern school. The independence and pride of the people prevented them from asking for state and federal aid. Led by First Selectman Leslie B. Johnson, the town voted to pay for a new school over a period of 30 years from the profits of the alewife fishery. If this season's catch continues, the town will own its own school years earlier than expected.

• **What price air space**—The taking of air space above the Charlestown, Mass., plant of the U. S. Gypsum Co., by construction of the Mystic River Bridge will cost Massachusetts $262,000 in damages. That was the verdict arrived at by a Suffolk County Superior Court jury, which found against the Mystic River Bridge Authority. Damages arose from the taking of an easement in the air over a part of the corporation's property along the Mystic River, and the construction in the water of a pier for the bridge about 90 ft from the petitioner's wharf. The jury found that $212,400 of the award was for damage due to the construction of the pier.

The Cover

The five men on the cover are in working clothes—and they're working here, planning the details of one of the biggest single construction jobs in history. The job is the Atomic Energy Commission's huge gaseous diffusion plant at Paducah, Ky., on which ENR reports in this issue, starting on p. 28.

Left to right are: E. A. Wende, deputy project manager, AEC; Kenneth A. Dunbar, manager for AEC; C. A. Billings, deputy project manager for F. H. McGraw Co.; F. J. Mayo, project manager for F. H. McGraw; and Jack M. Curlee, general construction superintendent for McGraw. (F. H. McGraw & Co., photo).

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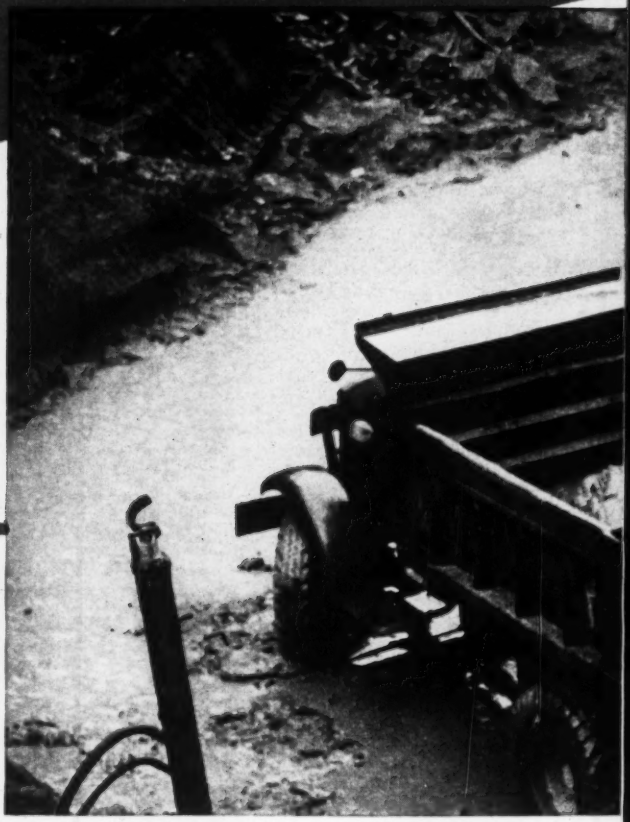

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THE CONSTRUCTION WEEK

CONSTRUCTION PRICE CEILINGS?—Despite the sad experience with construction price Regulation M-251 of War II, some of the personnel in the Office of Price Stabilization are proposing a ceiling-price regulation for construction. As tentatively drafted, the regulation would attempt to set top prices even for various classifications of earthmoving. OPS is calling a construction advisory committee of about 15 men to Washington on July 26 to consider it.

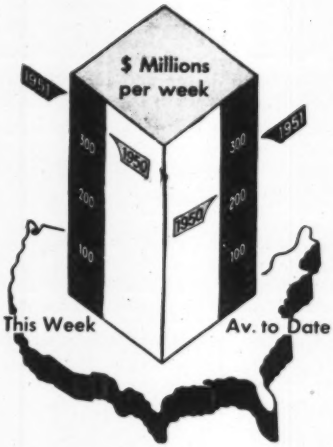
CONSTRUCTION COMMITTEE—Contrary to the word that was passed out at its second meeting May 3, National Production Authority will continue its Construction Industry Advisory Committee. The 29-man committee was appointed Jan. 11 for six months; 18 members came to Washington July 10 for their third meeting with NPA—a conclave marked by harmony, quite different from the turbulent session in May. Future appointments will be made with an eye to better representation for small contractors.

ANXIOUS ABOUT THE BACKLOG—North Carolina's highway commission is taking sideswipes at contractors regarding the number of highway projects they have under contract but on which they have not begun work. Highway Chairman Henry W. Jordan has asked William H. Rogers, Jr., his chief engineer, whether the contractors are overloaded. Rogers says the contractors claim they are not overloaded with jobs but, in his opinion it looks like they might be. The commission promises full cooperation with its roadbuilders but warns that it will not stand for any feet-dragging.

ALL OUT FOR SAFETY—National Constructors Association, made up of large industrial construction companies engaged primarily in building chemical plants, petroleum refineries and steel mills, inaugurated a safety program aimed at reducing lost-time accidents on building projects. Aim is to cut down on frequency and severity. The nine-months between January 1 and October 1, this year, will serve to establish base ratings for each member company. Safety awards will be made and it is hoped that an accident reduction of about 20% can be effected by January 1952.

CONDEMN NOW, SAVE MONEY AND TIME LATER—Maryland State Roads Commission received power from the state recently to condemn property for future needs—to prevent commercial and residential development of areas eventually to be taken for new highways. Formerly, the commission could condemn only for immediate needs, although it could accept gifts of land or negotiate purchases for future requirements.

GREEN LIGHT FOR PARKING—Ohio's Supreme Court last week affirmed a four-year-old state law that permits cities to engage in off-street parking activities, and thereby erected a marker in the long-standing legal battle as to the cities' powers in these matters. The court said, in effect, that the matter of relieving traffic congestion is an over-riding public need, and municipal action is proper and necessary. Decision came on a writ of mandamus sought by the Columbus city attorney to compel city officials to issue bonds totalling $4,250,000 to finance parking areas. One immediate effect: Cleveland will push ahead with a $1,000,000 parking plan authorized nearly a year ago.



Contracts by type of work

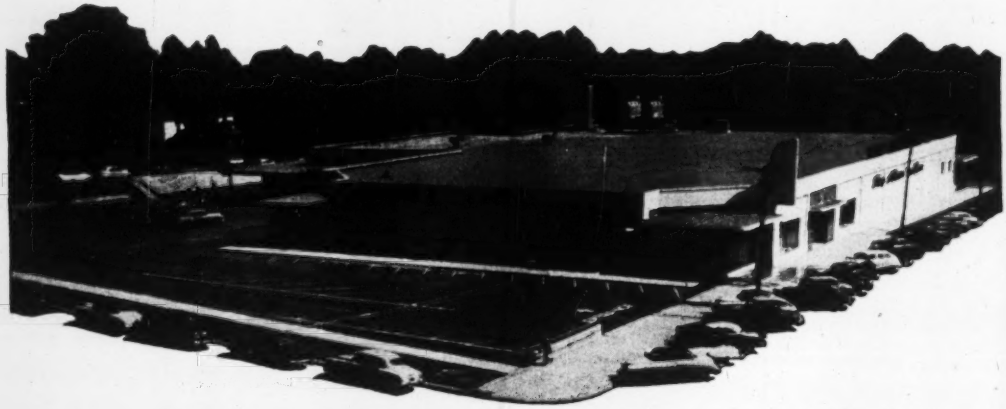
	This Week	Cumulative 29 wks 1951	1950	% chge
Waterworks	$6.1	$127.0	$128.8	−1
Sewerage	2.6	177.5	140.8	+26
Bridges	4.1	181.5	215.5	−16
Highways	29.3	642.8	708.4	−9
Earthwork, Waterways	14.8	324.2	290.4	+12
Buildings:				
Public	55.6	1,348.6	925.8	+46
Housg., pub.	48.8	507.2	141.9	+257
Housg., priv.	25.9	1,115.4	2,103.2	−47
Commercial	18.5	385.2	534.0	−28
Industrial	82.2	2,510.0	662.3	+279
Unclassified	73.2	1,090.3	736.6	+48
Total	**$361.1**	**$8,409.7**	**$6,587.7**	**+28**

NOTE: Minimum size projects included are: Waterworks and waterway projects, $34,000; other public works, $60,000; industrial buildings, $82,000; other buildings, $300,000.

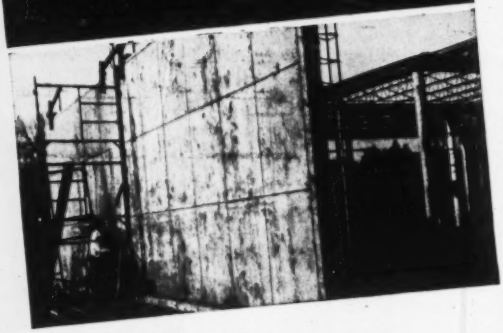
ENR COST INDEX

Index Base = 100		1913	1926	1949
Constr. Cost	July '51	542.36	260.71	113.70
Bldg. Cost	July '51	400.36	216.42	113.81
Volume	June '51	501	204	145

(Other business news on page 101)



WHAT MR. SEARS DIDN'T KNOW ABOUT RETAIL STORE BUILDING, MR. ROEBUCK DID!



● Sears-Roebuck expresses astute merchandising in terms of advanced store design and planned construction economies, using quality concrete for lowest initial and annual cost.

New stores, at Florence (shown here) and at Anniston, Alabama, each with 50,000 sq. ft. floor space, exemplify modern construction trends, with completely integrated design, including related parking area.

Exterior wall panels are 'sandwich' design, with inner two inches of vermiculite concrete, using 'INCOR' 24-HOUR CEMENT to speed placing the rest of the 8-in.-thick panel. (With sandwich design, practically any desired heat-transmission value can be obtained.) Grooved panel exteriors add wall interest.

After tilting panels into position, columns were poured between panels, then beam and parapet cast, completing the walls. Heavy cardboard tubing was used for forming the 15-ft., 12-in.-diameter, cast-in-place interior concrete columns.

Example of *selective concreting*—using Lone Star Cement for quality concrete and switching to 'Incor'*, where America's FIRST high early strength Portland cement saves time—and time is costlier than ever these days!

*Reg. U. S. Pat. Off.

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Contractor, Florence Store:
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Contractor, Anniston Store:
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RISING TRAFFIC HELPS MEET HIGHER ROAD COSTS

Rising cost of road-building poses more financial problems for state and local highway authorities. Costs have risen between 13% and 15% since Korea.

The cost-rise comes in the face of record needs for highway work. Expenditures on highway-building hit a new high last year—over $2.4 billion—yet they did not chip the backlog of highway needs, estimated at between $40 billion and $60 billion.

And needs are increasing faster than new roads can be built. Traffic on the nation's roads and highways is rising by 6%-9% a year. Highway construction will have to stay near its 1950 pace just to keep up with the growth in traffic, let alone eliminate the backlog left over from wartime neglect of the roads.

Financing that amount of work would be a problem at any time. But, with present higher costs, and counting in administrative and maintenance expenses, it will take well over $4 billion a year to keep highway operations at 1950 levels. That is more than the nation ever spent on its highways in one year.

• **Higher use helps**—Were it not for the steady increases in diversion of highway and automotive tax monies to non-highway purposes that have been made in recent years, there would be money to meet these needs because each year more motorists and more trucks have appeared on the highways. As a result, returns from registration fees and gasoline taxes have mounted.

Revenues from these sources have increased greatly in the past 20 years. By 1948 the combined revenues from special truck taxes, auto registration fees, state motor-carrier taxes and state gas taxes amounted to $3,168 million—slightly more than the total amount spent on building, repairing and operating the nation's highways. Back in 1929, when the U. S. spent $1.96 billion on its highways, these revenues were only $961 million.

Thus revenues from increased use of the roads have more than kept pace with road-building, and they have far out-stripped the growing cost of building roads.

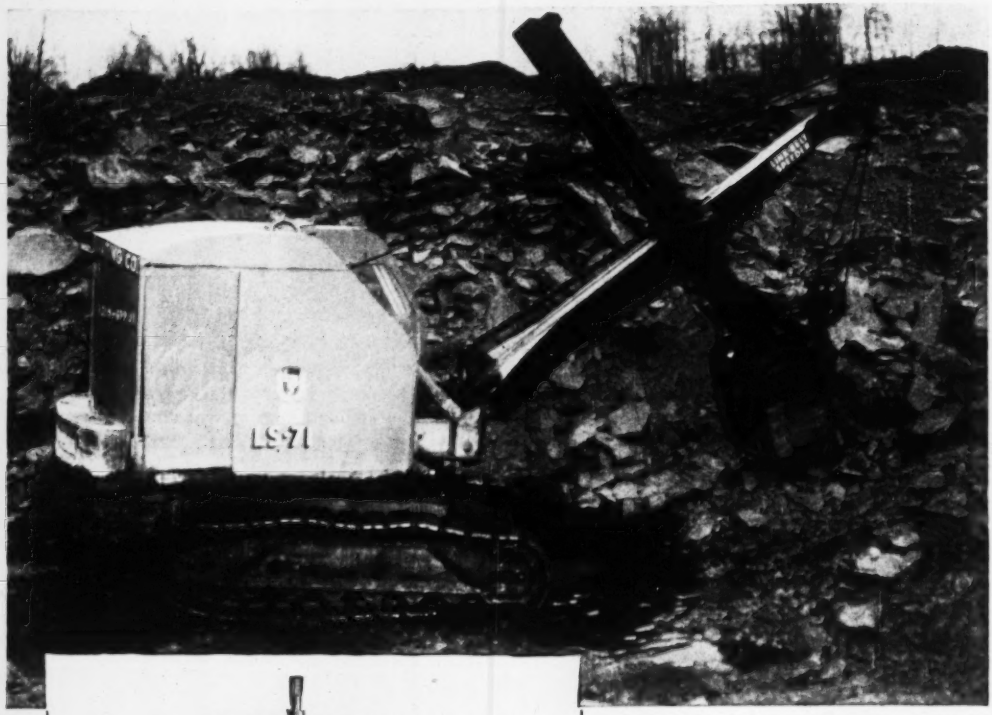
The Bureau of Public Roads' composite cost index has gone up only about 60% since 1925-29, while income from autos and trucks is up more than 200%. Hence—in theory—this country should be better able to meet its highway needs today than it was in 1929.

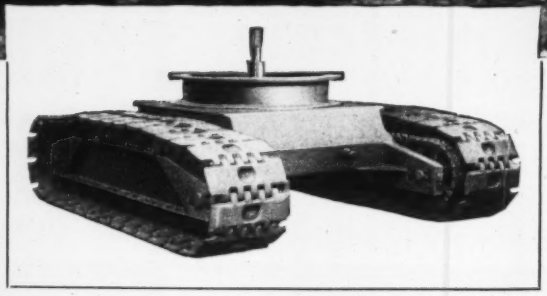
Where the pinch comes is in the use now being made of the income from automotive taxes, license fees and gasoline taxes. State highway departments, counties and cities only benefit from the increases produced by the higher traffic in those parts of the taxes that are not diverted. Higher traffic has no direct effect on the amount of federal aid allocated to the local highway agencies.

• **Key to financing**—In recent years, a relatively small part of the current income is used to back bond issues. But today, state and local authorities again are turning to bond issues as a method of financing their highway programs in the face of rising costs. To that end, Congress, in writing the highway act of 1950, authorized state and local agencies to use their federal-aid funds in future years to pay interest and amortization charges on bonds issued now for work on the federal-aid system.

Resort to toll financing is another method for quickly obtaining badly needed highways that has gained in acceptance in recent years. Highway engineers, who a few years ago strongly opposed toll highways, now see them as the only practical solution for certain special problems.

(More will be said on this subject of toll financing in a future *Trend*.)





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Slow down on the Delaware

FOR MORE THAN 20 YEARS it has been evident that ultimately all available water in the upper Delaware River basin would be needed for domestic and industrial supply purposes. Also evident was the ultimate need for an interstate compact apportioning those waters among the interested states—New York, New Jersey, Pennsylvania and Delaware.

Such a compact—drawn up by engineers employed by the Interstate Commission on the Delaware River Basin (Incodel)—has been a matter of public record since August of last year. Nevertheless, it was not until a few weeks ago—just as the Pennsylvania legislature was cleaning its slate for adjournment to 1953—that Governor Fine named a committee to study the compact and report its findings. Thus any action by Pennsylvania on the interstate compact is put off until 1953 at the earliest. Meanwhile, the need for water that could be supplied from the upper Delaware grows daily more acute in New York City and northern New Jersey.

Governor Fine's delay in acting on a matter of such importance to neighboring states is easily explained. No community or region in Pennsylvania is in urgent need of water from the Delaware. The Governor did not take office until January of this year, the legislature was new, and tax problems were a first order of business. On top of this the Governor had a distracting personal bereavement. Under such circumstances, lack of any action on his part on the Delaware water question would have been understandable.

But New York and New Jersey can hardly be expected to wait two more years for Pennsylvania to join them in the much desired interstate compact. What seems most probable now is that New York City will seek a modification of the Supreme Court's decree of 1931 limiting diversions from the upper Delaware. New Jersey might join in this action, as was stated in the review of the Delaware water situation published on p. 104 of the June 28 issue of ENR.

If New York City does go ahead with such an appeal, either alone or jointly with New Jersey, a responsibility would appear to rest on the engineers of Pennsylvania to see that Pennsylvania is not again put in the position of blocking much needed water development plans in neighboring states. The Incodel report contains a definite plan for what is considered by the engineers who wrote it as an equitable apportionment of Delaware River water among the states chiefly interested. If that plan is not acceptable to the engineers of Pennsylvania, as some have stated privately, now is the time for them to put forward counter proposals in the hope that agreement can be reached before the Supreme Court appoints a master to study this subject.

If there are no sound objections to the Incodel plan, then that fact also should be put on record with Governor Fine's study committee so that it could advise the special master that Pennsylvania has no objection to the apportionment set out in the Incodel plan. Should that be possible, it seems logical to conclude that the master's study would be largely a matter of formality and that his findings would be in harmony with those of the engineers who prepared the Incodel plan. Thus any further delay in giving effect to the Incodel plan could be avoided.

Wasted expert aid

THE GOVERNMENT is making poor use—frequently no use at all—of the service of industry leaders called to Washington. More and more this complaint is being heard, and if justified it mirrors a serious situation.

In the early days of NPA, industry advisory boards were a common and sensible device to help government staffs draw up orders that would accomplish desired results with the least possible upsetting of normal business procedures. Most of the boards worked hard and conscientiously in the preparation of orders only to find that when the government lawyers got through with rewriting the orders in what they considered to be proper legal phrasing, the meaning of the order had been changed or it was lacking in clarity for people of the industry to which it was to be issued. Loss of efficiency—and worse still—loss of confidence in government action resulted.

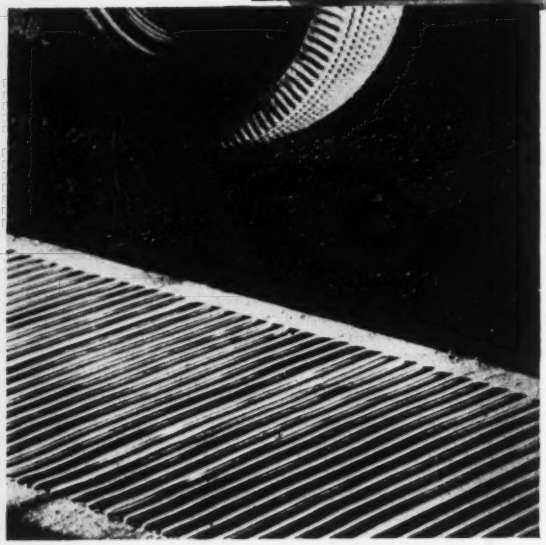
Now, with industry representatives actually on the staffs of NPA and OPS, it might be expected that the situation would be different. But complaints still persist that orders drawn up and completely agreed to are sent to the lawyers for the formality of legal phrasing only to come back with a part of the meaning completely changed. The problem exists, of course, because of the normal complexity of legal language and perhaps because not enough time is allowed to iron out the differences of opinion between the lawyers and the industry people.

Government lawyers may be a law unto themselves, but if they are slowing up the defense effort in this way someone in authority should curtail their powers to rewrite defense orders except where that is absolutely necessary to protect the government's interests.

It is enough of a sacrifice for experts from our various industries to come to Washington and help out, without having their efforts wasted. There is a continual cry from government that competent business men will not take government jobs. Congress is usually made the scapegoat because of its inquisitional hearings, but an equal deterrent may be found in the everyday procedures of the temporary government agencies themselves.

BY SOUND...

BY SIGHT...



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ENGINEERING NEWS-RECORD

JULY 19, 1951 VOL. 147 NO. 3

Greatest Kaw River flood was in 'super' class

All-time stages topped as result of heavy rains on water-logged basin—Focuses new attention on Army Engineers' plan of reservoirs and local levees

On July 2 when Kansas' Kaw River established stages that approached, but did not quite reach, the levels of the great 1903 flood, those who have argued that its all-time records were inviolate sat back with relief. Not so the hydrologists who have "scientifically imagined" floods that could add 50% to the 1903 discharges.

These experts, who have endured, good naturedly, the jibes at their imaginary "super" floods, were still confident that their figures didn't lie. What they hadn't counted on was that proof for their views was so close at hand.

Starting July 11 at Manhattan, a new crest moved down past Topeka, Lawrence and into the Missouri River at Kansas City that topped the 1903 stages by as much as 3½ ft. When the corresponding discharges are calculated it is believed that they will approach or exceed the super flood estimates. Indeed, the discharge of the Kaw at Kansas City is now claimed to have been 500,000 sec ft compared with 370,000 for the imaginary super flood.

In any event advance estimates indicate that more acres were under water, more industrial and agricultural damage caused, more transportation interrupted and more people evacuated than at any time in the history of the basin.

• **Among the worst**—Maj. Gen. Lewis A. Pick, Army Chief of Engineers, has expressed the belief that the total dollar cost (including losses from business interruption) would be in the neighborhood of $500 million. This would put the flood in the same class as the 1927 and 1937 floods on the Ohio and Mississippi Rivers.

On the other hand, only 17 lives have been lost so far in the Kaw flood as compared to 327 in 1927 and 137 in 1937. As a matter of fact, 105 persons lost their lives as a result of the 1935 flood on the Republican River, a principal Kaw tributary.

The latest Kaw flood, unlike the one earlier this month (ENR July 5, 1951, p. 24), was accompanied by more high water in the next basin south, that of the Arkansas River. Here such tributaries as the Verdigris and the Neosho recorded all-time stages.

Also on the Osage, which like the Kaw empties into the Missouri, some tributaries topped all-time levels. At Ottawa, for example, on the Arais des Cygnes, the flood crested at 42.5 ft, 2.5 ft over a legendary high mark of 1844, and 18 ft above present stage.

• **The bad one**—But it was the Kaw that was the continuous bad actor. At Topeka, where flood stage is 21 ft, the crest hit 36.2 ft on July 13 compared to the 1903 mark of 32.7.

At Lawrence, 25 miles downstream, where flood stage is 18 ft, a level of nearly 30 ft was reported, compared with 28.5 ft in 1903.

At Manhattan, 50 miles above Topeka, half the city was under water, including a considerable length of the main street. Here the stage was 13 ft above flood level.

(Continued on page 24)

Kansas City takes biggest beating

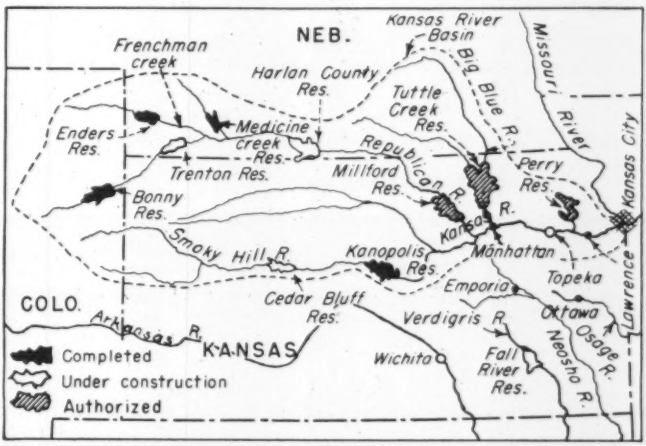
J. Roland Carr
Associate Editor

Kansas City, Mo.—The Kansas Citys got their worst beating from the rampaging Kansas River, which crested 1.2 ft higher, with peak discharge nearly double that of the 1903 flood.

Shortly before noon Saturday, July 14, the Kansas, or Kaw, River ended its wild three-day rampage in the Kansas City area and began slowly to crawl back within its banks. But it left in its wake damage to industrial, commercial, public and private property, the total extent of which will be far over any previous loss.

• **What water did**—The water knocked out four of the five principal industrial areas of the two cities, totaling 6,700 acres; put Turkey Creek pumping station, which normally pumps 75% of the water for Kansas City, Mo., completely out of business; came within inches of flooding the waterworks and municipal power plant serving Kansas City, Kans.; caused the mass evacuation of 6,000 north Kansas Citians; caused the spread of a big fire among oil tank farms and lumber yards that was still raging after 48 hours; inundated Fairfax Airport in Kansas City,

(Continued on page 25)



HOW KAW BASIN RESERVOIRS LOOK TODAY—Seven are under way or completed, but only Kanopolis was fully effective in present flood. Harlan County is for flood control, but others are for irrigation also. Nine other reservoirs are authorized of which Tuttle Creek is most important. Map is in error in showing Milford and Perry reservoirs as authorized by Congress. Army Engineers recommended them.

Greatest Kaw River flood . . .

(Continued from page 23)

And in Kansas City, where the crest arrived on July 13, the city's principal water pumping station at Turkey Creek was put out of service and all of the low-lying industrial areas in both Kansas and Missouri went under water, despite the new system of flood walls that the Army Engineers have built there during the past dozen years. None of the walls failed, and all functioned effectively within their capacity, but there were not enough of them. They saved the municipal airport in Missouri from serious inundation.

The walls, it may be noted, however, were designed to work in conjunction with 18 storage reservoirs upstream, only one of which—Kanopolis on the Smoky Hill River—was in full operation. Six other reservoirs farther upstream, as shown on the accompanying map, have been completed or are under construction, but they could not pond enough water to have much effect on the present flood.

Also, most of them are being built by the Bureau of Reclamation, with irrigation rather than flood control in mind. The only other big flood storage facility under construction—Harlan County Reservoir on the Republican River—was not far enough along to be of service.

• **The weather story**—Rains that started in late April have caused the recurrent Kansas floods, according to the U.S. Weather Bureau. June rains were particularly heavy and continued into mid-July.

Here is the record at two rainfall stations, showing precipitation way above normal for June and the first six months:

	Concordai (Blue R.)	Wichita (Arkansas R.)
Jan.	0.48 in	1.03 in.
Feb.	1.88	2.58
Mar.-May	9.83	16.62
June	11.84	10.89
6 months	24.03	31.12
Ave. annual	24.94	30.37

Precipitation in the early part of July has been extremely heavy. Two examples of this concentrated rainfall are Barnard, Kan., with 7.75 in. during 24 hours ending 7:00 A.M. July 12, and Wakefield, Kan., with 11.53 in. in three days ending July 11.

Kansas rivers have been in flood since early June. For example, at Manhattan the Kaw was in flood from June 7 to 17, and resumed flooding June 19 to the present (July 15). At Beloit, the Solomon was in flood from June 2 to 17, again June 21 to July 5, and July 10 to present. At Enterprise the Smoky Hill was above flood stage June 6 to 19, June 21 to July 9, and July 10 to present. Similar situations have existed on the Big Blue at Randolph and on the Saline at Tescott.

The result of all this is the spectacular figure for streamflow in Kansas during June given in last week's U.S. Geological Survey report—1,700% of normal for that month. Same pattern as 1903—such continuous rain, which waterlogged the soil and enhanced runoff, formed the background also of the 1903 flood, greatest previous disaster in the valley for which records are reliable. Then rain fell for 17 days over the entire basin with only slight interruptions, culminating in a four-day storm, May 26-29, in the lower Kaw basin.

The 1903 flood, being the most disastrous, has naturally been widely used as a design guide in planning flood protection. It is not, however, the "super" flood that has been envisioned as the worst possible or, more accurately, the flood whose magnitude would only be exceeded at "rare intervals." This flood, to which the Army Engineers have given the prosaic title, "standard project flood," would be caused by the protracted rains of 1903, followed by the actual storm that preceded a flood in 1909. At this later time, the air temperatures were more favorable to carrying moisture than those that existed in 1903.

For example, to cite a typical set of figures: The discharge at Topeka in 1903 was 253,100 sec ft. This would have been raised to 340,000 sec ft had the 1909 storm occurred in the waterlogged soil that the 1903 rains produced. It is significant to note that the Army Engineers estimate that this 340,000 sec ft discharge at Topeka would be reduced to 94,000 sec ft if the entire proposed reservoir system were in operation. At Kansas City, the mouth of the river, the reduction would be from 370,000 to 120,000 sec ft.

• **Status of reservoirs**—As stated earlier, a program for building 18 reservoirs in the Kaw River basin has been drawn up by the Corps of Engineers and the Bureau of Reclamation. Of this total, Congress has authorized 16 and has appropriated some money for 7 of them.

Of the latter, the two principal flood storage reservoirs are Kanopolis, completed on the Smoky Hill River, and Harlan County, under construction in the Republican. These two rivers join at Junction City to form the Kaw, which flows 169 miles east to Kansas City to a junction with the Missouri River.

Four of the other reservoirs, completed or under way, are farther upstream on the Republican and its tributaries, while the fifth is above Kanopolis on the Smoky Hill.

Among the other authorized projects, the most important from a flood control standpoint is Tuttle Creek reservoir on the Big Blue River, which flows into the Kaw just below Manhattan. The other two reservoirs that make up the total of 18 were recommended to Congress by the Army Engineers a little over a year ago. The report was referred to the House Committee on Public Works, which published it as House Document 642, but without subsequent action.

The two reservoirs in question are those at Milford on the Republican and at Perry on the Delaware. Milford had been recommended in an earlier report, but because of local opposition was replaced by Harlan County farther upstream. Now the Army Engineers think that it is useful enough to be included also.

The proposed expanded system of 18 reservoirs, plus 15 local protection

CMP goes into effect

Construction this week goes completely under provisions of the Controlled Materials Plan. A new order to effect the change was discussed last week by the Construction Industry Advisory Committee in a meeting with the National Production Authority—and the new order is expected before this week is out.

This order will do two things: Require new projects that will require more than specified amounts of steel (25 tons), copper (one ton), and aluminum (1,000 lb) to get CMP authorization before ground can be broken; authorize builders of small jobs to act as self-certifiers on their orders for the three metals.

Requirement of CMP authorization before breaking ground is intended to assure that the job will receive proper allotments of materials. The self-certifying provision is seen as putting the small contractor in a much stronger position, in that he will be able to use a CMP symbol on his orders (within specified limits) in the same way that small manufacturers of "B" products now do.

Self certification also extends to starting jobs without applying to NPA—if the job comes under the limits for steel, copper and aluminum.

When the new order is issued, it will mean the end of M-4 and of applications for construction permits on forms NPAF-24, which has been in use since February.

Kaw River flood . . .

projects, would control about 84% of the Kaw River drainage basin, it is estimated, and would provide flood protection for 608,000 acres of rural and urban land. About 930,000 acres are subject to flooding.

It also is estimated that three of the five major floods that have occurred on the Kaw since 1902 would have been reduced to bankfull stage, and that the 1903 and 1945 floods would have been held at bankfull levels except at Topeka.

• **Residents said: "no"**—It is interesting to note, in connection with the present floods, that a proposed ring levee around North Topeka, for which federal money has been available, has been held up through legal action of local residents. Manhattan and Blue River Valley residents have opposed the Tuttle Creek reservoir on what may now appear to be the erroneous assumption that it would principally benefit Kansas City and the Kaw River towns. And, at Lawrence, where the north side of town has been under water, a proposed federal levee project has been deferred because the local residents have not contributed.

In contrast to these conditions, Salina suffered only minor damage because of the presence of Kanopolis Reservoir upstream. Up only 85% of its available flood storage, Kanopolis was able to hold the Smoky Hill to bankfull level downstream. Not only Salina but all Smoky Hill and Kaw River communities benefitted.

As we go to press, the flood waters in the Kaw basin are receding, while stages are rising all along the Missouri to St. Louis, with a possibility but not a certainty of record-breaking discharges.

In the meantime, new support for the Kaw basin flood control program is beginning to appear. Whether this will remain effective when the matter of cost vs. benefit begins to be reexamined in a less emotional atmosphere is not possible to state.

There are these figures to go on, relative to rural losses: 1903—$11.7 million; 1943—$10 million; 1945—$13.7 million.

There is also the matter of greater physical development in the valley and higher costs in the present period. The 1903 damage, were it to occur today, might easily be in the neighborhood of $50 million. In this connection the Army Engineers, in the Kansas River report, estimate that a repeat of the flood cycle of the past 43 years, using present costs and state of basin development, would cause an average annual damage of $5,120,000. The actual comparable figure for the period was $1,972,259.

Kansas City takes beating . . .

(Continued from page 23)

Kan.; and isolated the Kansas City, Mo., municipal airports; brought to a complete standstill the operations of all but one of 12 railroads serving the two cities; and left many homeless.

This superflood on the Kaw crested at 38.2 ft, which is 1.2 ft above the 1903 flood. At its maximum fury, it spewed an estimated 500,000 cfs into the Missouri, compared with a 260,000 peak flow during the 1903 flood.

• **Rain**—The cause of this superflood on the Kaw was the abnormally high intensity or rainfall over its watershed July 11-13. During that three-day period virtually all the watershed got at least one-inch of rain. Two-inches fell on 75 % of the watershed, 6-in. on one-third the area, and 12.7 in. maximum in the center of the three-day rain pattern.

One factor credited with keeping the flood from mounting higher was the Liberty Bend cutoff in the Missouri, a short distance downstream from the mouth of the Kaw, which relieved considerable flood pressure. Another fortunate occurrence was that the Missouri was flowing only about 80,000 cfs.

When the full impact of the Kaw flood hit the Argentine industrial district in Kansas City, Kan., shortly before midnight, July 12, it overtopped and breached local levees, inundating the area.

• **By the back door**—Fairfax, the fourth major industrial area to be put out of commission, was not inundated until the morning of July 14. How this happened is peculiar.

After the wall of water had overtopped the Armourdale and central industrial districts, it surged toward its confluence with the Missouri. At this point a concrete outflow drainage culvert is buried beneath the levee along the southern tip of Fairfax. The force of the flood waters was so terrific that they shot into the culvert, bursting it, and creating boils behind the levees.

Heroic efforts of the Army Engineers to save this area by dumping several feet of material on top of these boils failed, and almost the entire area was inundated. With the swirling waters on the inside of the area, they quickly breached the east side levee along with Missouri by attacking it from the rear. This rear face, in accordance with accepted practice, was not riprapped.

• **Last attack**—For its final fling, the surging flood poured out of Fairfax and across the Missouri, setting up an eddy-like action that tore at the levee protecting North Kansas City.

But the Kaw lost this last ditch round of its attack. This four-mile stretch of levee, recently completed as part of the Army Engineers Missouri River basin program, held. And the people returned to their homes.

No accurate count was possible of the number of workers that engaged in this battle with the Kaw River. The Kansas City District of the Corps of Engineers, headed by District Engineer Col. L. J. Lincoln, led an around-the-clock fight for several days, beginning when the flood first hit such upstream cities as Manhattan, Topeka and Lawrence. Chief of Engineers Maj. Gen. Lewis A. Pick.

Missouri will not reach high marks

Even if, as reported, the Missouri River crested at Kansas City at 36.0 ft, 1 ft above the 1903 record, Missouri River stages are not apt to exceed their all-time highs. Nevertheless, the topping of the 1903 Missouri River flood mark at Kansas City has caused Harry F. Wahlgren, chief of the Weather Bureau in St. Louis to adjust his predictions for the Missouri River at St. Charles, near its mouth, and for the Mississippi at St. Louis.

His guess on July 14 was that the Missouri will crest at St. Charles on Friday, July 20, with a high of 37.0 ft, the highest since the record mark of 40.11 ft set in 1844. This new forecast for St. Charles would top the 36.4 crest for the Missouri there on July 5, when it cut through the Missouri-Kansas-Texas railroad embankment north of St. Charles.

The Mississippi River in St. Louis (at the 37.0 ft mark on July 14) will crest at 38.7 ft on July 20, Wahlgren predicted. This would top the 38.0 ft mark set in the 1903 flood, when a peak of 1,000,000 sec ft was flowing in the Mississippi River at St. Louis. In revising his prediction, Wahlgren said: "This is a major flood in the St. Louis region, but we believe it will not be as bad as the floods of 1943, 1944 and 1947." Flood level in St. Louis is 30.0 ft. The river reached a peak of 38.9 ft there in 1943; 39.1 ft in 1944 and 40.26 ft in 1947. The all-time high is 41.39 ft set in 1844.

Flood experts in St. Louis still believe that despite the new crest of 38.7 feet predicted by Wahlgren there should not be any great destruction along the Mississippi River between St. Louis and Cairo, Ill.

Important bridge construction gets priority for money and materials

Progress on three Florida structures assured with steel grant; Louisiana, West Coast have big plans afoot

Bridge construction and plans keep making news in all corners of the country. In some cases plans are being activated as rapidly as arrangements for finances and construction materials can be completed.

• **In Florida**—A fervent plea for more steel and an assist from Florida's Senator S. L. Holland, chairman of the Senate sub-committee on roads, has enabled the state to garner the Bureau of Public Road's first supplemental steel allotment under CMP. The allocation will keep the Arlington and Gilmore Street Bridges at Jacksonville (ENR May 3, p. 24 and May 10, p. 26) and the Lower Tampa Bay Bridge (ENR Dec. 30, 1948, p. 12) moving on schedule.

Florida Road Chairman Alfred A. McKethan filed an application for about 13,000 tons of additional steel after the bureau had been allotted only 7,700 tons for all Florida road needs during the third quarter.

He based his plea on economic and military necessity and financial hardship—due to the fact that bonds on the Jacksonville project already are out and the bridges had to be completed to produce toll revenues.

The defense angle is that the only two bridges across the St. Johns River now are inadequate to serve the huge Navy air installations.

Low bids for completion of the 12-mile Lower Tampa Bridge between St. Petersburg and Bradenton, submitted recently were two per cent under engineers' estimates.

Virginia Bridge Co., Roanoke, Va., submitted a low bid of $3,873,991 on the main bridge superstructure which will rise 150 ft above the channel.

Hardaway Contracting Co., Columbus, Ga., was low at $7,614,236 for construction of more than three miles of trestle approach on the bridge and substructure of the main span. Benton & Co., St. Petersburg, was low at $241,827 for three miles of hydraulic fill. Atlantic Dredging Co. already is working on fill and two small bridges on the Pinellas County (north) end of the bridge. The Hendry Corp. is fabricating a double-leaf bascule drawspan for a small channel on the north side.

The main bridge, with a total length of 5,624 ft, will have twelve 100-ft plate girder spans, twelve 140-ft plate girder spans, four 289-ft deck truss spans. There also will be a three-span cantilever unit, consisting of two 360-ft anchor arms and a main span 864 ft long.

The completed Lower Tampa Bay Bridge is expected to cost about $21 million and take three years for completion. Parsons, Brinckerhoff, Hall and MacDonald are the designers.

• **West Coast**—In the last few minutes before adjournment, the California Legislature approved a $750,000 appropriation to complete engineering plans for a toll bridge from Richmond, Contra Costa County, to San Rafael, Marin County.

The bridge will cost about $54 million and the legislature has ordered that no funds shall be made available until the Army grants a permit for construction.

The bridge plan faced considerable opposition in the assembly. Opponents said its construction would forever prevent a master plan development in the bay region. This group was referring to a modified Reber Plan for solving the traffic, tideland and fresh water problems in the bay area (ENR Nov. 23, 1950, p. 31).

Supporters of the bridge plan object to postponing construction of the bridge in favor of a proposal which, they claim, would be many years in being realized, if ever.

Consultations have been held between the Oregon and Washington state highway commissions relative to construction of an interstate bridge across the Columbia River in the Portland, Ore.—Vancouver, Wash., area.

Washington is planning a new north-south freeway to ease traffic problems and Oregon is debating whether the freeway should be led onto the present interstate bridge or whether a new one should be built at another site. Cost of the proposed structure is estimated at $25 million.

• **Bi-state span over the Ohio**—Kentucky and Indiana state highway departments signed an agreement with the Indiana Toll Bridge Commission for a toll bridge across the Ohio River at Lawrenceburg in the southeastern corner of the Hoosier State.

Each state has agreed to finance the approach on its side. Indiana will pay for the bridge and then collect the tolls to pay for it. Estimated cost is $3,975,800.

• **Mississippi crossing**—Another bridge crossing the Mississippi River is visualized by Louisiana officials. The structure would be built at New Orleans to tie in with that city's plans for traffic-flow improvements. Governor Earl K. Long has approved an outlay of $250,000 for the drawing of plans, to be repaid by the bridge financing which is to come out of a bond issue. It is estimated that a $44-million bond issue will be required to pay for the bridge and its approaches.

• **Experts approve**—Although Michigan is delaying a start on the proposed Straits of Mackinac Bridge (ENR May 31, p. 25), the state has gone ahead with exploratory work on the nature of underlying rock formations where pier foundations would have to be placed.

ON THE WAY DOWN—Barges of Brown & Root, Inc., at work submerging the last two sections of the new $5-million vehicular tunnel underneath the Houston Ship Channel. Tunnel sections were fabricated on shore, towed to location and sunk into position (ENR Dec. 28, 1950, p. 13). When completed, the tunnel will link the busy industrial towns of Baytown and LaPorte. The 35-ft dia sections were fabricated by Consolidated Eastern Steel Corp., Orange, Texas.

Slab-jack method raises new manufacturing plant

The Long Construction Co., Kansas City, has been showing off its Sky Hook division in the construction of the Stern-Slegman-Prins Co. garment plant in that city.

Using the Youtz-Slick method (ENR June 29, 1950, p. 38), as one of three licensees, Long jacked a 190-ton concrete roof slab, measuring 40 ft by 90 ft and 8 in. thick, 15 ft at the rate of 0.083 in. per second.

Reinforced concrete roof slabs are cast on a thin, oil-base compound on the floor slab, then jacked into place at roof level. The largest slab raised recently was positioned in 15 hrs (extra time was consumed in testing equipment on the first "run"). The second slab was brought to the 15-ft roof level in three hrs of working time.

Part of the Kansas City structure will have a mezzanine floor. Here, the roof slabs will be raised first and the mezzanine floor beneath them. When slabs are lifted into place, integral collars surrounding steel supporting posts are welded to the posts which support the roof and upper floors.

Kivett & Myers, Kansas City architects, designed the building; Pfuhl & Shideler, also of Kansas City, are the structural engineers.

Fresh hope for proposed New England steel mill

Governor John D. Lodge of Connecticut has received a new report on a proposed New England steel mill at New London (ENR Jan. 18, p. 24).

The report submitted to Governor Lodge was done by H. H. Brassert of Washington, Conn., an industrial engineer of many years experience. Among the conclusions reached by Brassert is that the proposed mill could show an operating profit of $21,000,000 after the fourth year, almost triple that estimated in the earlier Coverdale and Colpitts survey.

His report went to the governor just as the Committee for New England Economy, an offshoot of President Truman's Council of Economic Advisors, gave an indorsement.

The economic study of the entire region said the proposed $250-million integrated steel mill was needed and that the market should support such an undertaking.

The Brassert estimate of sales is one million tons as compared with 610,000 by Coverdale. Brassert also proposes a much larger mill. And he feels that ore could be bought much cheaper than the estimate proposed by Coverdale.

FRAMEWORK FOR DEFENSE—New Chrysler Corp. tank plant under construction at Newark, Del. Steel-frame manufacturing building measures 1,500 by 600 ft; two-story office structure of reinforced concrete will be 560 by 60 ft. Three high bays shown are for final assembly of medium and heavy tanks for the Army, have 55-ft clearance and are 200 ft long. Two are 80 ft wide and third spans 40 ft; 80-ft bays will have 60-ton overhead cranes. Foundation work and piles for main structures have been completed and much of the structural steel is in place. The one million-sq ft plant was designed by Albert Kahn Associates, Detroit, and general contractor is H. K. Ferguson Co., New York.

Contract let for smelter, town site

Contract for the first stages of Aluminum Co. of Canada's smelter and townsite at Kitimat on the northern British Columbia coast (ENR May 24, p. 26) has been awarded to Kitimat Constructors, a group of eight Vancouver contractors who have pooled their resources to handle the job.

No official value has been announced for the contract, but it is estimated to run from $50 million upwards and may go as high as $175 million.

Kitimat Constructors will carry out construction of the first stages of the smelter and related facilities. Related facilities include sub-division of the townsite, building of harbor facilities, waterworks, sewers and streets for the town 450 mi north of Vancouver.

The companies are Bennett & White; B. C. Bridge & Dredging; Emil Anderson; Campbell Bennett; Dawson & Hall; Dawson, Wade & Co.; Central Construction; and Marwell Construction.

Meanwhile, engineers are rushing work at Nechako Canyon, site of the eventual main dam which will bottle up the entire Tweedsmuir Lake system to develop 1,600,000 hp. A diversion tunnel at the Nechako damsite has been driven a distance of more than 140 ft from each end. Mannix Ltd. has 200 men working on the project. The tunnel will be 1600 ft long and 32 ft in diameter.

At Kemano the road is now completed 10 mi from tidewater and clearing is under way for the powerhouse.

Morrison-Knudsen Co., Boise, Idaho, is in charge of the power end of the Alcan development, acting through the company's Canadian branch, with which are associated Mannix Ltd. of Calgary, and Northern Construction and J. W. Stewart Ltd., of Vancouver.

B. C. power becomes spur to industrial development

With British Columbia's 33,000-hp Whatshan Lake hydro plant only recently gone into operation (ENR July 12, p. 25), the Arrow Lakes area already is alive to the news that a $75-million industry is planned for the region.

Although Lands Minister E. T. Kenney would not disclose detailed information beyond the statement that such a plan is in work, it is believed that the industry proposed is an integrated forestry operation. Included would be a chemical pulp mill, a newsprint plant, a sawmill and possibly a plywood plant.

It is reported unofficially that the company interested is the Columbia Cellulose Co., Ltd., affiliate of Celanese Corp. of America—which recently opened a pulp mill at Port Edwards, near Prince Rupert.

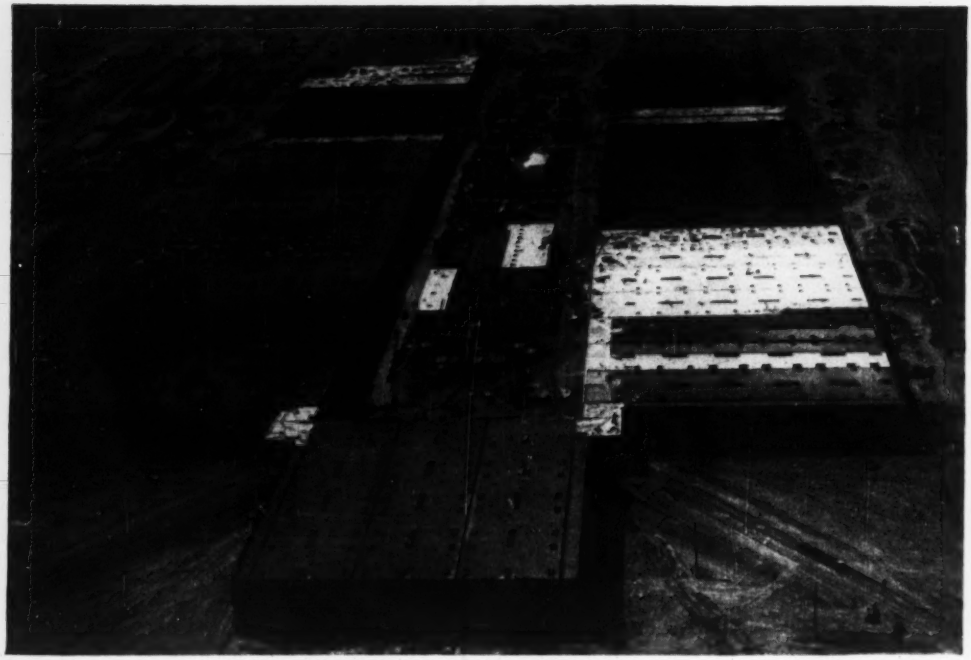


Fig. 1. PROTOTYPE of the new U-235 production facilities at Paducah is the gaseous diffusion plant at Oak Ridge.

Marshalling men and methods for half-billion dollar atom plant

Contractor strategy and staffing

(First of three articles)

J. Roland Carr
Associate Editor

HEAVY CONSTRUCTION ACTIVITIES, steadily gaining in stride at the site of the old Kentucky Ordnance Plant 16 miles west of Paducah, should reach their peak by November.

The objective: To construct a completely integrated $475 million plant for the brewing of a lethal punch, born of the Atomic Age—uranium-235.

The method: By means of a single fixed-fee contract, covering plant and equipment, negotiated last December by the Atomic Energy Commission. Estimated at about $330 million, it is reported to be the largest single government construction contract ever given an individual firm.

Many stories could be, and probably will be, written about this tremendous undertaking during construction and following its completion. But one of the most interesting and challenging operations to date has been the development of a construction force to build the plant and of the engineering forces to design it.

This is that story. It deals chiefly with the organizational setup of the contractor building the facilities, the five architect-engineer and contractor firms responsible for their design, and the field organization of AEC which supervises and expedites the work.

• **What's to be built**—Although many details of the huge undertaking cannot be disclosed for reasons of security, the following facts can be told:

Fissionable uranium-235 will be separated from inert, non-fissionable uranium-238 in a large gaseous diffusion plant, which will be the principal component of the project facilities.

This new plant is patterned after, and will supplement production of, the $500 million gaseous diffusion plant completed at Oak Ridge in 1945 (ENR Dec. 13, 1945, vol. p. 781).

• **How it works**—In the gaseous diffusion process uranium-hexafluoride—a gaseous compound of uranium—is pumped through thousands of extremely fine barriers containing literally millions of tiny holes per square inch. These holes have average diameters of two-millionths of an inch.

The U-235 atoms are slightly lighter and therefore travel slightly faster than U-238 atoms. Consequently, they strike the screens, or barriers, and pass through the submicroscopic pores with greater frequency than do the U-238 atoms.

The end result of this process is that the fissionable U-235 atoms—which make up only one part in 140 of natural uranium — are gradually separated and concentrated. The uranium-235, so produced, will be

used in weapons or in fuel elements for nuclear reactors.

The gaseous diffusion method is considered to be more economical than and superior to either the electromagnetic or thermal diffusion processes. In addition the operation of the plant will involve no radiation problems.

• **Site selection** — Selection of the 5,000-acre site of the project—which has access to abundant Ohio River water for cooling and processing—was made by representatives of the Atomic Energy Commission in consultation with the National Security Resources Board and the Department of Defense. A special five-man selection committee of experts, chosen from engineering and industry, reviewed and concurred in the site recommendation.

Dollarwise, about 12% of the entire work will be structure construction; the remaining 88% will be for mechanical and electrical work, and installed equipment.

• **Negotiating the contract**—Considerable secrecy surrounded the project during contract negotiations between AEC and the prospective contractors. For example, neither the location nor purpose were disclosed.

The AEC gave a general measure of the budget estimate of the cost of the entire plant and an inkling of the amount of the fixed fee that would be applicable. It also gave, in a general way, the sizes, square footages and number of buildings included, with a few meager details as to their structural composition.

Not knowing the approximate location of the project, the contractors had no way of knowing the size of the labor market that would be available. This has turned out to be quite a problem since other industries either already located near Paducah or now constructing plants are already creating a labor shortage.

At the start of negotiations 13 contractors and contractor combinations were considered for the job. After each had had its turn with AEC the field was narrowed to four, from which F. H. McGraw and Co. was picked.

• **Why McGraw was picked**—It is no secret why F. H. McGraw and Co. was picked to do the job, which includes all construction and installation of equipment. Based on its record, it had the construction know-how but, more importantly, it could furnish adequate supervisory personnel to insure quick implementation and successful prosecution of the work.

As one AEC representative put it: . . . "in choosing a contractor on a fixed-fee contract of this type and magnitude, past construction records of the firm are indicative of its ability to handle the work. But the know-how factor is really represented by 'people'; specifically those in the supervisory bracket . . ."

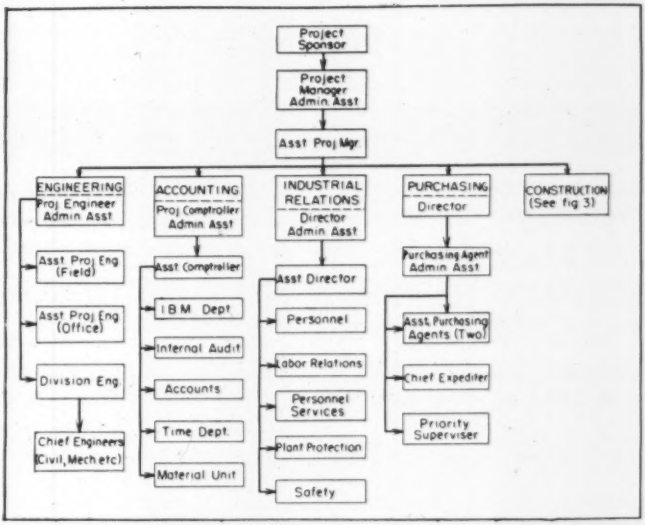


Fig. 2. SUPERVISORY PERSONNEL of F. H. McGraw & Co. divides among five equally-important departments, but three-fourths of its power goes to construction.

PEAK MANPOWER REQUIRED FOR PADUCAH ATOM PLANT

Electricians	1,875
Pipefitters and plumbers	1,850
Carpenters	1,050
Ironworkers	750
Welders	550
Cement finishers	450
Painters	350
Operating engineers	325
Millwrights and machinists	300
Truck drivers	300
Masons	150
Laborers	2,400
Administrative, supervisors, engineers, clerks, plant protection, firemen, etc.	1,800
Total	12,150

MAJOR CONSTRUCTION EQUIPMENT FOR PADUCAH ATOM PLANT

Tractors (including bulldozers and side-boom cranes)	50
Stake-body trucks	65
Dump-trucks	40
Truck-mixers (2½ to 4½-cu yd)	25
Crawler cranes	22
Scrapers	15
Wagons	15
Graders	6
Truck cranes	6
Power shovels	4

The McGraw Co. qualified high on both of these counts.

McGraw received the contract early in December and by the last of the month had assigned 48 key personnel to the project. Eventually this number will be increased to 100, in addition to recruiting men from outside the company to staff the lower echelons of supervision, including foremen.

Construction got underway about Jan. 15. At the outset of the job one of McGraw's most important questions was where to place the strength of its organization. Obviously, the answer was "in construction." Key departments, such as engineering, industrial relations, purchasing and accounting would need top-level staffs of seasoned veterans with the company. But the nature and scope of work called for first emphasis to be put on building up a strong supervisory staff to run the general construction division.

• **Top men from other jobs**—It wasn't easy; but it was done. Calls were issued to other going projects of the company—some of which were in the multi-million dollar class—for the loan of top men for Paducah.

In some instances this created a ticklish problem. Some of the company's customers at first took a dim view of losing those who were successfully prosecuting their work. But, in the main, these conflicts were ironed out without loss of company prestige and goodwill. Some supervisors at Paducah are former McGraw men who, for one reason or another,

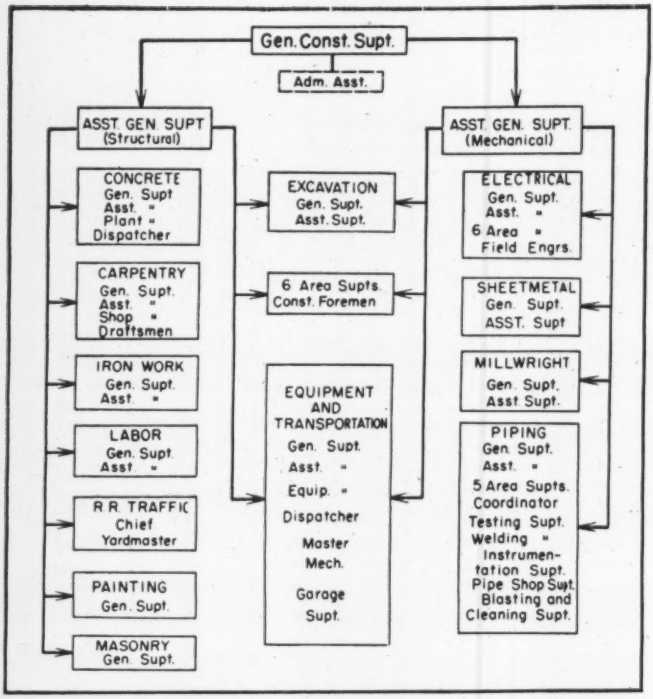


Fig. 3. DUAL LINES of administrative authority start with McGraw's general construction superintendent and radiate downward through 14 key construction operations. Seventeen area superintendents are directly in charge of the work in designated areas.

had gone with other organizations.

Some of the very top men were transferred to Paducah from a power plant and a large industrial project nearing completion in Marietta, Ohio. Also from a power plant job in Detroit. The home office at Hartford, Conn. and the district offices in New York and Chicago furnished others. Some even came from Ocala, Fla., Salt Lake City, Montreal, and even from Oak Ridge.

Appointment of the top-level men for the Paducah job set off a chain reaction in the selection of assistant supervisory personnel: general superintendents, area superintendents, chief engineers and other key employees.

Company policy was to build up each department, in so far as possible, upon the recommendation of the departmental heads. Based on past experience in staffing other large projects, such as the Bermuda Naval Airbase, the Sunflower Ordnance Plant and the Geneva Steel Works, this method insures teamwork.

McGraw's top men were subject to security investigations by the AEC, similar to those practiced at Oak Ridge. This applies, to a lessening degree, all the way down the line including the workmen.

• **Five field divisions**—A project manager heads up the company's entire operation at Paducah (Fig. 2). He has one assistant in direct line of authority, and one administrative assistant. There are five departments: Construction, Engineering, Industrial Relations, Purchasing and Accounting.

Of the 100 key personnel being assigned to the job, about 75 will be in construction and the remainder in the other four departments.

• **Housing is tough** — There wasn't much McGraw could offer its men as inducements to go to Paducah (population 32,400) except money and a chance to participate in one of the most challenging construction projects of the century. Living costs were known to be high.

A few fortunate ones were able to buy houses before real estate started to boom. But those seeking temporary quarters, either in apartments or single rooms, are finding the going tough. Three-room apartments rent from $125 to $140 per month, while a single room costs in the neighborhood of $50 per month.

Marginal housing, of course, was offered for sale or rent. As one superintendent expressed it: ". . . anything within walking distance of water, or within sight distance of a power line, is called 'modern'."

Arrangements have been made for moving 250 small flat-top houses from Oak Ridge to be re-erected on concrete block foundations immediately adjacent to the job site. Utilities will be furnished from central facilities of the project. This housing is to be provided and administered by a McGraw subcontractor selected on the basis of competitive bids.

No mass housing is planned, but a limited number of barracks are being constructed.

As shown in the accompanying organization chart of the Construction Department (Fig. 3) the 14 departmental superintendents report directly to one of two assistant general superintendents—one in charge of structural work; the other in charge of mechanical installation. Problems not solved at this level are referred to the general construction superintendent—top man of the department.

Two innovations—exploited successfully on other large McGraw jobs—are being used on this project to expedite construction and insure a high level of labor productivity. They entail the use of several area superintendents and a general labor pool.

• **Area superintendents**—As the job is now set up, there are six area superintendents in charge of general construction; five in charge of piping installation; and five in charge of electrical work. Additional area superintendents will be added as the tempo of the work increases. As their titles imply, area superintendents are directly responsible for specific construction operations in designated areas.

An area may contain only one major structure or it may involve a number of smaller ones. This set-up not only continues the direct line of authority from general construction superintendent and departmental superintendents, but it also focuses administrative supervision directly on the work, permitting quick, on-the-spot solutions of construction problems without going to higher authority.

• **Labor pool is productive**—The labor pool is designed to secure maximum productivity, avoid production losses through idle time, and avert pirating of labor within the overall organization. It is flexible, and operates reasonably smoothly. Daily manpower requirements for the various craftsmen and laborers, determined as far in advance as practical, are fulfilled according to the available supply and the degree of necessity of the operations.

• **Tight construction schedule**—Those

connected with the job admit that the construction schedule will be a tight one. But the job is rolling along well despite an unusually rainy spring.

Possibly the biggest potential bottleneck is the securing of certain critical construction materials. No construction equipment bottlenecks are anticipated. Equipment that can't be purchased probably can be gotten from the AEC's equipment pool at Oak Ridge. No great labor bottleneck is expected either, despite the considerable other heavy construction underway or soon started, in that area.

But the prime necessity now and in the early stages of the job is to get materials and installed equipment on order. This is a three-way responsibility involving the companies who are preparing the designs; the McGraw Company which develops detail plans for ordering materials and equipment; and the AEC which sees that operations are coordinated and expedited.

A relatively small part of the work will be subcontracted—and only when necessary to meet satisfactory completion dates for the various facilities. Some of this will be for piping and electrical work. Subcontractors will not operate entirely on their own, however, but will integrate their forces and equipment with those of the general contractor.

• **Temporary facilities**—The contractor's plant layout for construction and equipment installation is made up of nine temporary buildings including an administration building, now completed.

Erection of these facilities was started Feb 15 and the last one will be finished by July 15. They include five shops for sand-blasting, pipe fabrication, instrument work, sheet metal, and rigger loft. There also are an electrical warehouse shop and office, a general warehouse, and a batching plant. The carpenter shop, machine shop and garage are located in existing buildings formerly used by the Kentucky Ordnance Works.

• **The equipment situation**—At the start of the project, construction equipment was obtained from the AEC's surplus equipment pool at Oak Ridge. Some of this equipment was not in too good condition, while some types of excavating and earth-moving machinery had to be pressed into service for which it was not designed.

As the job progresses, new construction equipment is being purchased by the AEC and the McGraw Co.—with government funds—to supplement the original equipment and make for better construction efficiency. Major equipment requirements for the job are shown in an accompanying table.

• **Some big buildings**—The two largest structures in the project are part of the process plants. One will measure 1,098 x 970 ft., covering 25 acres. The other will be 800x640 ft, covering about 12 acres. Construction is under way on both. There will be 38,000 tons of structural steel and more than 100,000 cu yd of concrete in the two.

Both buildings will have structural steel framework of 75-ft columns, wind bracing and roof trusses, a reinforced concrete floor, corrugated asbestos siding, and a built-up roof of asphalt impregnated fabric and gravel on metal decking.

The steel columns will be supported on concrete pedestals with spread footings; the largest of which will be 9½-ft square to carry a 352,000-lb load. Maximum design footing pressure is 4,000 psf.

Some of the other buildings will also be of steel, but reinforced concrete will also be used. One reinforced concrete structure will be a sewage treatment plant, designed for serving the equivalent of 2,500 persons on a basis of 8-hr usage.

• **Existing filter plant**—An existing water treatment plant of the old Kentucky Ordnance Works is being rehabilitated and enlarged. It will provide alum-lime treatment and chlorination. There will be two kinds of water furnished throughout the plant; settled water for processing operations, and sanitary water for domestic consumption and fire protection.

Wet weather held up foundation work considerably this spring, but it is on schedule now. Construction operations are on a 48-hr week—in one, two or three shifts as needed. The first footings for the smaller process building were poured April 17 with structural steel erection starting shortly thereafter. Concrete placed to date has been supplied by transit-mix trucks, served by a small, temporary batching plant.

• **Excavation problems**—Most of the plant area is covered with 2- to 5-ft of decomposed organic soil, or loess, which must be removed at structure sites. Below that, the foundation material is impervious silt and lean clay, underlain by clayey sand and gravel.

Removal of the overburden, performed by carrying scrapers, draglines and trucks is easy. Excavation for footings is tougher, but the shallower ones can be poured without forms.

Currently, the several miles of haul roads and those connecting the various construction areas within the project are of temporary construction, creating a terrific dust hazard in dry weather and offering poor service in wet weather. Some stretches are so narrow as to be hazardous. They will be widened where necessary.

The second article, to be published next week, will describe how the contractor set up his engineering and other service departments such as industrial relations, purchasing and accounting.

PADUCAH PERSONNEL OF ATOMIC ENERGY COMMISSION:

K. A. Dunbar, project manager
E. A. Wende, deputy manager

Division Chiefs:

R. J. Brown, construction-engineering
A. L. Rydzewski, security
W. D. Miller, operations
T. M. Yakimchick, administrative

Branch Chiefs:

E. A. Kraemer, cost control
K. C. Brooks, construction-engineering
W. W. Wells, material control and expediting
O. S. Clark, electric power
A. Riley, personnel security
G. J. Rathman, security operations
W. Hay, personnel
D. J. Grant, control coordinator
R. E. Russell, fiscal & off. services

TOP MEN AT PADUCAH FOR F. H. McGRAW & CO.

D. W. Neville, vice president and project sponsor
F. J. Mayo, vice president and project manager
C. A. Billings, asst. project manager
L. H. Harmon, project engineer
J. M. Curlee, gen. const. supt.
B. H. Nielson, director, industrial relations
O. R. Kruger, assistant director
C. C. Parker, personnel manager
M. Ralston, labor relations
O. F. Thorsan, personnel services
C. Patterson, safety engineer
H. R. Root, director of purchasing
W. C. Auld, purchasing agent
E. M. Breman, AEC liaison coordinator
O. A. Kincaid, chief expediter
A. F. Furlong, project comptroller.

McGraw's Construction Supervisors

J. M. Curlee, gen. superintendent
E. C. Hansen, asst. gen. supt.

Superintendents:

R. Bushart, excavation
F. W. Dyke, concrete
J. Tearney, electrical
M. J. McGrath, carpentry
F. DeWest, iron work
J. Galley, piping
W. H. Bussie, labor
C. A. Roma, sheet metal
E. L. Gribble, equipment and transportation
V. G. Cole, painting
H. Larson, masonry
D. Monocchio, concrete plant
J. Stevens, shop
W. E. Dowler, equipment

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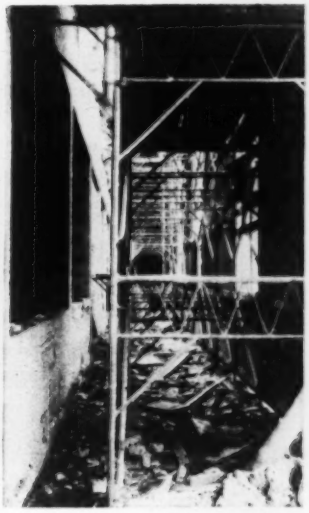


PLYWOOD PANELS and transparent plastic windows supported on light, tubular scaffolding formed a temporary enclosure for the steel frame of a two-story school at Star Lake, N. Y. Heating the interior permitted masonry work throughout the winter.

How one builder beat winter weather

PAYROLL and material savings due to a faster work schedule easily offset extra costs of all-weather construction —even under severe winter conditions. That's what John Rouse and Harold Putnam, contractors of Gouverneur, N. Y., found in building the Clifton-Fine school at Star Lake, in northern New York State.

The structure is two stories high. L-shape in plan, it has one wing 56 ft wide and 246 ft long and a second 82 ft wide and 403 ft long. In addition to classrooms and administrative facilities, the building contains a gymnasium, an auditorium and a garage for ten school buses.

Ground was broken in Sept., 1950, and foundations were poured before real cold weather set in. But by the time the steel frame was up, winter had arrived in full force.

• **Work area enclosed**—Meeting a tight completion schedule while battling the icy winds off Lake Ontario was a tough prospect. But Rouse and Putnam thought up a way to beat the cold.

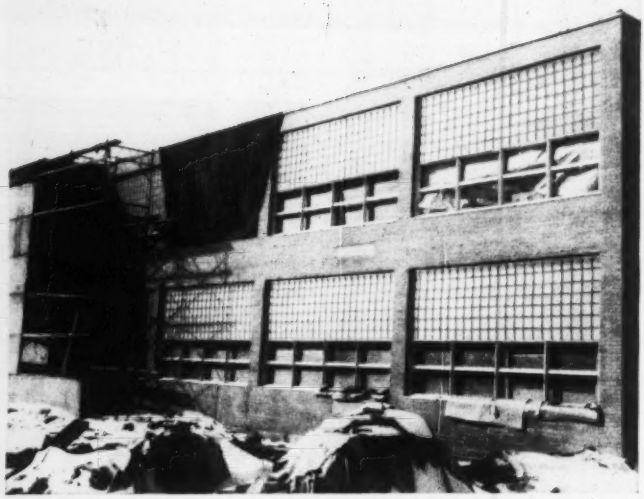
The garage was rushed to completion to provide sheltered storage and workshop space. Then, the roof of the school building was covered over as rapidly as possible. Finally, the rest of the steel frame was enclosed temporarily in plywood windbreaks, while work proceeded in the interior.

Fortunately, the roof material specified by the architects fitted the contractors' plans very well. It is a lightweight, hydrous calcium-silicate, insulating roof tile, which can be installed quickly in dry weather. (The architects selected it because it also combined rigidity with its light weight, permitting lighter steel framing.)

One crew set the tiles in place. Immediately, a second crew grouted the joints, and a third covered the roof with tar paper and nailed it down. The work went quickly, even with crews consisting of unskilled labor. Prominent marks applied by the manufacturer to identify the topside of the tiles eliminated error and facilitated inspection.

The contractors next erected light, tubular scaffolding up to roof level

ROOF TILES were set in place as soon as enough of the steel frame was erected.



COMPLETION of the brick and glass-block exterior of one section of the school enabled the contractors to move the windbreak to an uncompleted section.

on both sides of the building's steel frame, for a distance of 80 ft. To the scaffolding they attached easily constructed plywood panels and windows. Effective in keeping out wind and rain, the panels were a stock plywood size on simple wood frames, and the windows were plastic-covered wire mesh on rough sash. Tarpaulins were used to seal end openings.

Fuel-oil stoves supplied ample heat to permit masonry work without danger of freezing. This work included the brick-and-concrete-block exterior walls and glass-block fenestration. The high insulation value of the roof tiles was valuable in keeping down heat losses.

When a section of the building was completed, the contractors dismantled the 80-ft long plywood windbreaks and hastily rebuilt them alongside the next section, so as not to delay the all-weather schedule.

Having kept to their schedule throughout the winter months, the contractors now have no worries about meeting a Sept., 1951, deadline. Scaffolding and windbreaks, fully salvageable and adjustable to many types of structure, will be available for another job by then.

• **Fast design**—From drawing board to opening of classes, the project will have taken just 18 months, including the time involved in taking bids, awarding the construction contract and starting work.

The school was designed by Reisner and Urbahn, architects of New York City, in only four months. Capable of caring for 900 pupils in all grades from kindergarten through high school, it will cost $1,319,000. This amounts to $15.65 per sq ft and $0.98 per cu ft. Such equipment as desks and some laboratory equipment that will be purchased under separate contracts, however, are not included in the above cost figures.

Notes on legal decisions

Summaries of decisions relating to construction work prepared by I. Vernon Werbin, counselor at law and engineer, New York, author of Legal Phases of Construction Contracts (McGraw-Hill Book Co.)

Performance under contract

In a recent case,[1] the court held that under a contract to build and sell a house for a fixed price and to deliver the same at a specified date the purchaser was entitled to have the property conveyed to him on the specified date, and if the house was incomplete at the time of the conveyance, the purchaser was entitled to an abatement of the contract price in the amount that would equal what it would cost him to complete the house.

In the above case, the house was in a development being built by the defendant contractor. Delivery of the deed was to take place on Sept. 15, 1950. In August, 1950, the defendant builder asked each of the purchasers to pay him an additional $2,500 over and above the price agreed upon in the contract, claiming that the price of building materials had skyrocketed after the outbreak of the Korean war and that most of the builder's suppliers had refused to abide by their agreed prices for materials. Forty-nine persons had purchased houses in the development and out of these, 40 had agreed to pay the increased price. The house bought by plaintiff had not been completed and the purchaser claimed that the contractor had refused to complete it unless he had the additional payment.

The action was brought to obtain specific performance of the contract. The papers submitted to the court indicated that the builder was not unable to fulfill the contract. The sole reason why he refused to perform under the contract was that it had ceased to be as profitable as he expected it to be and he was unwilling to pay the increased cost of the materials. The court in directing specific performance of the contract, stated: "There would be little point in making a contract at a stipulated price if one of the parties could avoid it when it became onerous. If the defendant [builder] wanted to be certain of a profit it could have drawn a different type of contract, for example, one providing for payment on a cost-plus-percentage basis. It did not do this and it cannot now shift its loss to the plaintiff [purchaser]. One would be naive indeed to believe that had prices declined defendant would have passed the saving over to the plaintiff. Defendant cannot eat its cake and have it too."

The court in its opinion further stated: "Defendant thus made a firm agreement to finish the building within 90 days of the closing date regardless of the cause of delay. The only provision permitting defendant to refund plaintiff's deposit and be free of further liability is in the event that the seller cannot convey a marketable title and even then the plaintiff had the right to take such title as the seller could give.

"Clearly what prevented the completion of the contract was not something beyond the control of the seller, but rather something peculiarly within its control, to wit, its desire for an increased price."

(1) Gordon v Hewlett Harbor Const., Inc., 100 N.Y.S. 2d 857, Supreme Court of New York, Nassau County, Nov. 14, 1950.

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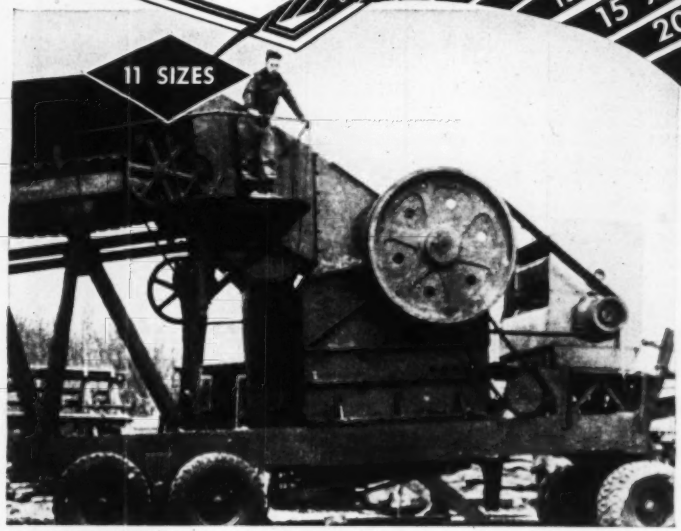

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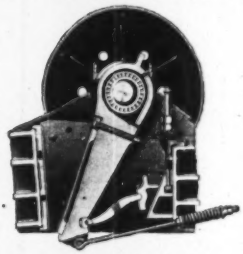

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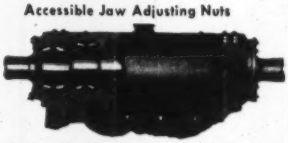

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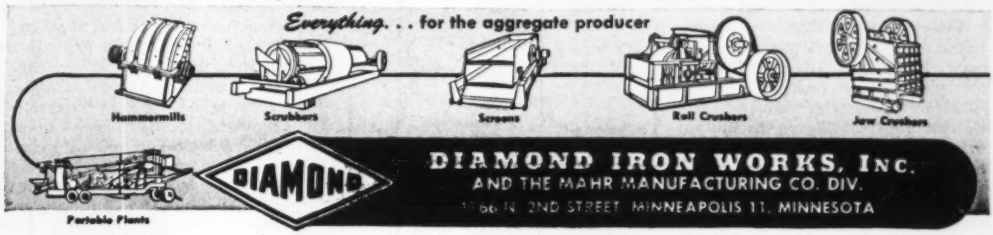

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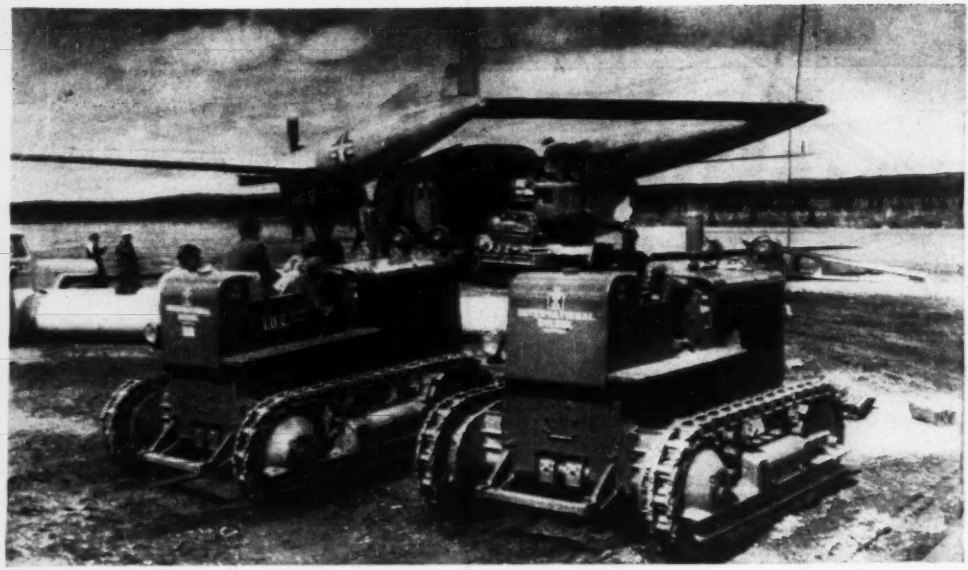


CRAWLER TRACTORS were loaded on planes and flown from Seven Islands, Que., 320 miles northward to Knob Lake.

Construction for steel . . .

Operation "railroad airlift"

RAILROAD CONSTRUCTION by airlift is a far cry from methods employed by pioneer railroad builders. But air transport is now driving an ore railroad deep into the isolated forest lands of Quebec and Labrador.

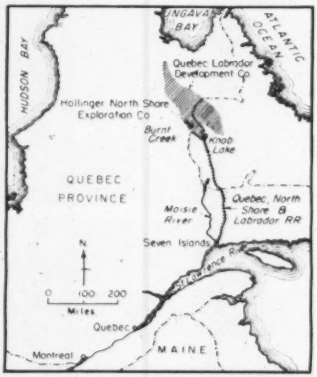
Besides being the only means of access to the project except via the St. Lawrence River to Seven Islands, the airlift will speed the work by permitting construction to be started at any point along the line where it is practical to build a landing strip.

Heaviest equipment taken in by air to date is said to be a fleet of fifteen 14,500-lb International TD-14A tractors; while the bulkiest item is one of several 8-cu yd Bucyrus-Erie carrying scrapers. The tractors were shipped by boat from Montreal to Seven Islands, then moved—one to a plane-load—by air to Knob Lake.

The tractors were shipped complete, minus only their track pads and drawbars. They were driven on and off the plane under their own power. Accessory equipment, such as power winches and bulldozers were shipped separately and installed on arrival. The scrapers also were shipped assembled.

• 350 miles of new railroad—The air freighters are working to speed construction of 350 miles of single track Quebec, North Shore and Labrador Railway. Starting at Seven Islands, Que.—about 300 miles northeast of Montreal—the railroad will run almost due north 350 miles to Knob Lake (ENR Sept. 9, 1948, p. 6).

Primary purpose of this railroad is to move iron ore to deep water from the fabulously rich mines of the Iron Ore Company of Canada, now in the process of exploration by the Hollinger North Shore Exploration Co.



IRON ORE from the potentially rich Burnt Creek mining area will move from Knob Lake to the St. Lawrence River over 350 miles of railroad.

• Railroad work underway—Three sizable stretches of railroad grade are planned for completion this construction season, (ending about Oct. 15). A 75-mile stretch of grade will be built north from Seven Islands; 35 miles in the vicinity of Wacouna (90 mi north of Seven Islands); and 27 miles of grade south from the Knob Lake terminus.

All railroad track will be laid from the Seven Islands terminus, using 132-lb rail. Ore trains powered by diesel electric locomotives will be radio controlled, with passing track built every 30 miles.

Starting from near sea level at Seven Islands, the railroad will rise to a summit elevation of 2,056 ft at a point 150 miles north of Seven Islands. From there on to Knob Lake the country is comparatively flat. There will be relatively few heavy cuts and fills since the line follows natural water courses.

From Seven Islands it will closely follow the Moisie River to the junction of the Nipissi River, and the latter to

the junction of the Wacouna River. From that point it will continue on north to Lake Ashuanipi and Lake Menihek, then along the north-south rivers that feed these lakes to the northern terminus at Knob Lake.

Maximum adverse grade for loaded trains (south bound) will be 0.3%. For north bound trains traveling empty, the maximum adverse grade will be 1.8%. The railroad is designed to handle 100-car trains, pulled by four 1,600-hp diesels, and hauling 10,000 long tons of ore.

• **Few major bridges**—Surprisingly few railroad bridges will be needed. One major bridge about 680 ft long will cross the Moisie River about 12 miles north of Seven Islands, and a long trestle bridge will cross Hamilton River near Knob Lake. Now under construction is a 2,250-ft tunnel about 12 miles north of Seven Islands.

A receiving and grading yard will be built at Seven Islands with connections to an ore loading dock. At Knob Lake there will be a marshalling yard, with spurs leading to main line hoppers. Ore will be hauled from the mines in 30-cu yd trucks and handled at the loading yard by belt conveyors.

• **Two electric power dams**—Several construction activities—other than clearing of railroad right-of-way and roadbed construction—are planned or under way in the Knob Lake area. An earthfill dam is to be built at Lake Menihek Rapids, about 30 miles south of Knob Lake. Its power plant will generate 24,000 kw of electric power for railroad and mining operations.

A second earthfill dam and plant of equal power capacity will be built on the Marguerite River 22 miles west of Seven Islands. It will furnish electricity for the town, the railroad, and the ore dock installation. Both dams will be built for the Ungava Power Company, a subsidiary of the Iron Ore Company of Canada.

Considerable mine-exploration activity centers around Burnt Creek, Que., about 12 miles northwest of Knob Lake. There are an estimated 417 million tons of proved ore reserves in this area. It lies close to the surface with an average 8-ft of overburden. Ore bodies vary in depth up to 400 feet and range up to 5,000 ft long and 600 ft wide.

Total employment in the Knob Lake-Burnt Creek area is expected to reach 600 this summer. The Knob Lake construction camp and the mining camp at Burnt Creek are complete. The railroad construction camp at Wacouna is well underway.

• **Camp facilities comfortable**—Living conditions at the camps are comfortable if not elaborate. Bunkhouses have 6-in. walls built of logs squared on three sides and left rough on the exterior.

All buildings are centrally heated from a wood-burning boiler house, with hot and cold running water and modern sanitary facilities. Electricity for each camp is furnished by an 85-kw generator powered by a 180-hp diesel engine.

Everything for the operation of the camps must be flown in, including food supplies, medicine, equipment and construction materials not obtainable locally. A fleet of 12 planes, operated by Hollinger Ungava Transport, Ltd., a subsidiary of Iron Ore Company of Canada, ferries all materials and workmen to the camps.

The cost of the airlift runs 8¢ to 10¢ per pound, but the urgency of implementing and prosecuting the construction is believed to justify this.

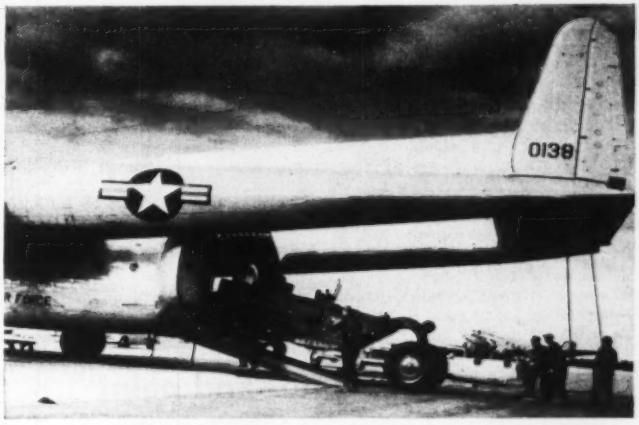
Construction of a 4,000 ft airstrip will soon get underway at Lake Menihek 30 miles south of Knob Lake to facilitate the handling of supplies and equipment for the proposed dam construction at Lake Menihek Rapids.

Early this season tractors with bulldozer attachments were brought part way from Knob Lake over the ice in frozen channels. When the ice broke up they were floated across the remaining channels on rafts made of empty oil drums.

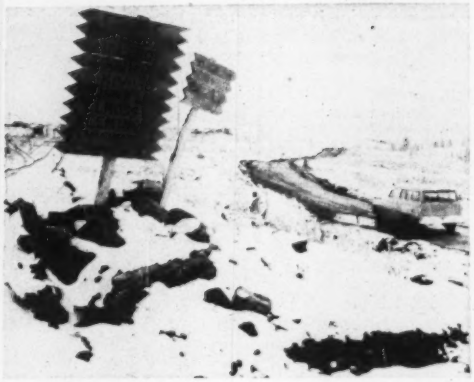
• **Construction difficulties ahead**—One of the unusual construction problems is the lack of timber. Only the sheltered valleys offer anything in the way of usable trees for the production of lumber. The rest of the landscape supports only a few small trees.

Another construction difficulty is

AIRBORNE TRACTORS, plus 8-cu yd earthmoving scrapers also ferried by airlift . . .



. . . team up to build a railroad in Labrador and Quebec.—Int'l Harvester photos.



JUNE BLIZZARD doesn't stop railroad right-of-way clearing near Knob Lake (at left), while trail roads (at right) must be constantly maintained to keep construction traffic moving. Sign posts indicate exploratory mining areas, not towns.

the lack of good concrete aggregate. Most of the material has such a high iron content as to make quarrying and crushing difficult. Moreover, it does not make suitable concrete. The iron content causes oxidation and flaking.

Needless to say, the severe climate is another handicap to construction. Winter temperatures as low as minus 50 deg. F., and yearly snowfall up to 60 in. limit the construction season to five or six months.

• **Production in 4 years?**—Production of iron ore at Burnt Creek is still too far away to estimate accurately its date of beginning. Latest guess is that mining will start in 1954 and transportation of the ore will begin in 1955, at a yearly rate of 5,000,000 long tons. These schedules may be materially advanced, however, depending upon requirements for iron ore.

When operations are in full swing, the Iron Ore Company of Canada expects to produce and ship 10,000,000 long tons of ore annually. All transport and dock installations are designed to handle double that tonnage. The company will spend $200 million for exploration, construction and preparation work before it moves the first ton of ore to market; with about one-half of that sum going for railroad construction and operating equipment.

Cartier, McNamara, Mannix and Morrison-Knudsen, joint venturers, are contractors on the 75 miles of railroad grade at Seven Islands, and the 35 miles of grade near Wacouna. J. G. Pickard is project manager; W. E. Ross, chief engineer; and Hakon Nielsen, general superintendent.

The 27-mile stretch of railroad grade south from Knob Lake is being constructed by the Iron Ore Company of Canada. Harry H. Gardner is general superintendent for both the Knob Lake and Burnt Creek areas.

CONSTRUCTION FOR STEEL—This is the second of a series on construction problems incidental to America's steel-expansion program—Editors.

Color card saves time—and paint

Adoption by the U. S. Government of a uniform means of indicating paint colors has culminated several years of cooperative effort by the National Bureau of Standards and the Federal Specifications Board.

The new Federal Color Card for Paints reduces the more than 600 paint colors formerly used by the government to 187, by eliminating unimportant variations of shades.

The various branches of the U. S. government collectively form the largest single purchaser of paint in the world. The color card, which consists of actual spots of the colors deposited on charts in a loose-leaf binder, is expected to contribute materially to governmental purchasing economies; paint suppliers will be able to supply paint more quickly and economically and the agencies will no longer have to maintain their own color standards.

Preparation of this specification was guided by the Federal Specifications Board's Technical Committee on Paint, Varnish, Lacquer, and Related Materials under the chairmanship of E. F. Hickson (retired chief of the National Bureau of Standards paint laboratory). The NBS assisted.

The specification describes a method for the rapid visual comparison of colors, to check the conformity of paint for the supplier.

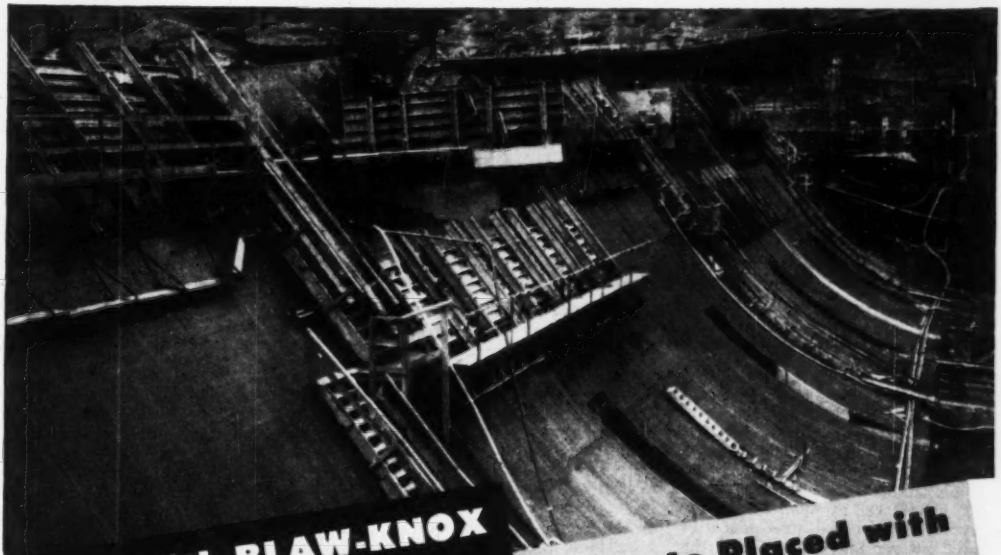
Each spot consists of an area 2½ by 1¼ inches, coated with a pigmented lacquer. The spots are classified in three main groups depending upon the gloss of the surface finish: Glossy, semi-glossy, and lusterless (or flat) colors. Each group is further classified according to the hue name, presented in the order brown, red, orange, yellow, green, blue, gray, and miscellaneous (including black and white). For a particular color group, the colors are arranged, when possible, in the order of dark to light.

The numbering system used for the color spots is based on the arbitrary assignment of numerals in multiples of one hundred to each of the eight color classification groups. Open numbers have been left between each two adjacent color spots in order to permit the insertion of additional spots without destroying the progression of spots from dark to light. Thus, Glossy Brown is numbered 1000, semi-glossy, 2000; lusterless, 3000. Red is numbered 1100, 2100, 3100.

• **Colorimetric analysis**—Most material working standards for color are specified on a fundamental basis, using the present-day methods for engineering description and specification of color. For this reason a spectrophotometric and colorimetric analysis of a master set of these paint color spots is being made by the Photometry and Colorimetry Section of NBS.

Also defined will be a master set of color spots in terms of the Munsell System of Color both by the method of visual comparison and by the method of spectrophotometric analysis. The "ISCC-NBS (Inter-Society Color Council–National Bureau of Standards) system" can then be utilized.

A Million Yard Concreting Job



WITH over a million cubic yards of concrete being placed on the Mt. Morris Dam project—Blaw-Knox Steel Forms and Concrete Buckets are used to speed completion and keep costs at minimum levels.

Whenever you have a huge undertaking like this, or any tough or unusual concreting problem call on the Blaw-Knox engineering service, available to any contractor from preliminary planning to the final pour. Blaw-Knox engineers can recommend the correct forms for your job, and help you cut costs by suggesting simplified forming methods that often reduce the number of necessary operations. When you write for information, also ask for Bulletin 2035.

Model CAC 8 yd. Concrete Bucket placing concrete on the Mt. Morris Dam job. Equipped with air-operated clam gates, these Blaw-Knox buckets are designed for big-job specifications calling for air-entrained cement and 6" aggregate in the concrete.

BLAW-KNOX

BLAW-KNOX DIVISION OF BLAW-KNOX CO., Farmers Bank Bldg., Pittsburgh 22, Pa.

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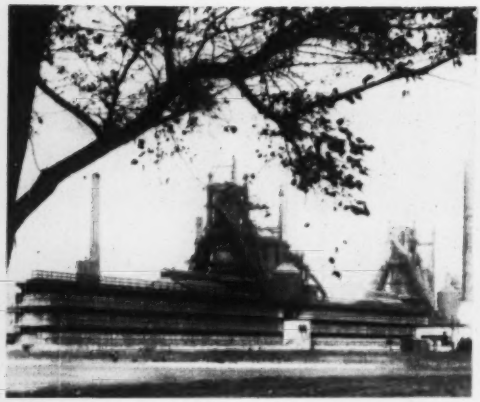
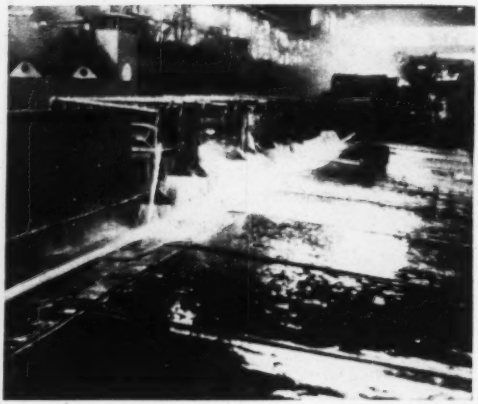




From blast furnace to rolling mill, steel making needs lots of water. But an efficient plant in California desert shows how . . .

Industrial plants can conserve water

A LITTLE WATER does a lot of work at one West Coast steel plant. While steel plants in the U. S. average 65,000 gal of water in making each ton of finished steel, less than 1,200 gal per ton is required at the Fontana, Calif., plant of the Kaiser Steel Corp.

Unusual circumstances that may not be duplicated elsewhere led Kaiser officials to their stringent water conservation program. However, some of the details of procedure may be applicable elsewhere.

Basic fundamental in the conservation plan is this: No water leaves the plant except as it evaporates into the air during use or from cooling towers. Water is reused many times and is subjected to treatment at various places in the process.

• **Two water systems**—There are two basic water systems—domestic and industrial. The domestic system ends in a sewage treatment plant, the effluent from which is returned to one stage of the industrial system.

The industrial system breaks down into four separate circuits, quality requirements for each successive circuit being lower. Fresh water is introduced into the first two systems, and excess water from these systems is "blown down" to the next lower circuit. Excess from the third is blown down to the fourth.

• **War-time plant**—The Kaiser plant at Fontana, Calif., is a wholly integrated steel manufacturing process. It starts with coking ovens and blast furnaces and carries through open-hearth furnaces and rolling mills to production of finished pipe and tin plate. It was built early in World War II to provide a continuing supply of plate for the Kaiser shipyards on the West Coast. In planning the installation, there was an eye-to-the-future: facilities were made to fit a hoped for boom in postwar West Coast economy. This foresight proved sound; the plant has continuously operated at full capacity and is now in the process of a major expansion.

When Kaiser was locating its plant, government restrictions ruled out steel plants closer than 50 miles from the Pacific Coast—during war-time. Company officials were forced to accept a site in what is essentially a desert location with a limited dependable water supply. Thus it is that Kaiser must conserve water so carefully.

Capacity of the plant is now about 80,000 tons of finished steel a month. For this amount, 90 mg of water is required in the various phases of steel making. Consumptive use of the plant is about 3,000 acre-ft a year—comparable to the amount that would be required if the area occupied by plant facilities were devoted to agriculture.

• **Sand filters used**—Water comes from wells on the mill property and from the Fontana Union Water Co. (essentially suppliers of irrigation water; shares were acquired with purchase of the steel plant site). Water is stored in a 4½-mg reservoir at one corner of the relatively level site.

All water is treated by alum precipitation and then passed through rapid sand filters. Flow is then to a reservoir for the domestic system. Overflow from this reservoir goes into an industrial water system reservoir. On rare occasions, when demand is high, some industrial water bypasses the treatment plant.

The domestic system supplies boiler feed water to the powerhouse, where it is further treated in a zeolite softener. Domestic water also is used for fire protection and irrigation of lawns, flowers and shrubs. However, much of it is used for sanitary purposes (the plant has over 5,000 employees).

Sewage flow is treated in a two-stage bio-filter sewage treatment plant. Flow to the plant is 0.5 mgd. Plant effluent is chlorinated to a 10-ppm residual and pumped to the second stage of the industrial system.

• **Industrial system**—First stage of the industrial system is motor room cooling. There is some 138,000 hp of installed electrical equipment at the Fontana plant as well as other mechanical equipment needing cooling.

From the motor rooms water passes through the cooled skids of the reheating furnaces and is then recirculated to system cooling towers. This first stage is a relatively clean service and no treatment is included. Further, there is not very much "blow down" to the second-stage system. Most water escapes this system through evaporation at the cooling towers. However, enough water is added to keep up quality.

The second-stage industrial system supplies water for cooling the bearings and rolls of the various rolling mills. Some of the water is recirculated at the mills to move scale into the scale pit. Heat load on this system

is low but volume is very high. As this water carries considerable suspended solids, there are three clarifiers in the second-stage system. These are operated in parallel for solids removal.

The third-stage industrial system receives all of its water supply from the second-stage system. This is essentially a cooling system for the open-hearth furnaces, the blast furnaces and the coke plant. Water continuously recirculates through this system, and as it does so, it picks up impurities. Flow through one blast furnace is as much as 3,000 gpm.

• **Water cleans gas**—Final industrial circuit is the fourth stage—primarily for gas washing. Function of this system is to wash dirt particles from blast furnace gas. This permits burning the gas in other parts of the steel plant without the danger of plugging flues with dirt. Further, a reduction in amount of particles discharged into the air is affected. In effect, the gas washing is a smog-control measure.

Water in this fourth stage becomes poor in quality after passing through the system two or three times. At this point it becomes necessary to use further treatment.

A floc is formed by a mixture of soda aluminate and alum, added in a Hydrotreater. This is followed by sedimentation in a 90-ft dia thickener.

Some water from this No. 4 system is used to cool blast furnace slag by direct sprinkling—the final water use at the plant.

• **Acid disposal**—At various stages of production of finished steel products, acid pickling is used to remove surface blemishes, rust and scale. Considerable quantity of water is involved in this process, so a separate acid disposal plant has been installed. Lime is used to neutralize the acid, and a series of three turbo-mixer tanks form the treatment. Overflow from the third is split two ways: part of it is recirculated and the surplus goes into a 50-ft dia thickener. Water from the thickener is returned to the second-stage industrial system.

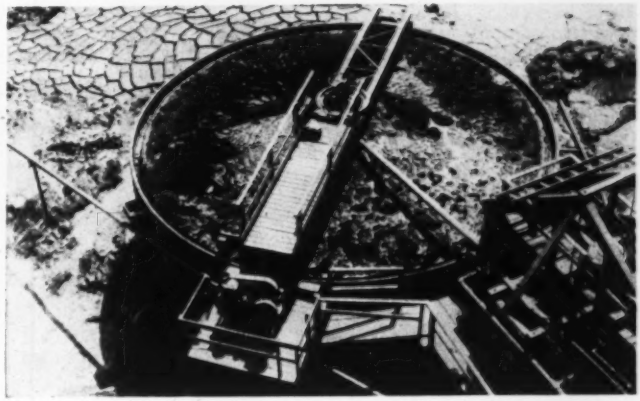
As a safety factor, there is a water recovery pond in the plant. At first, some water was lost due to pump failures and operating errors. Now a natural basin in the plant is used to collect this water and recover it to the industrial system.

Water from the surface of the various sludge beds in the plant is returned to the clarifiers from whence the sludge came and is thus reused.

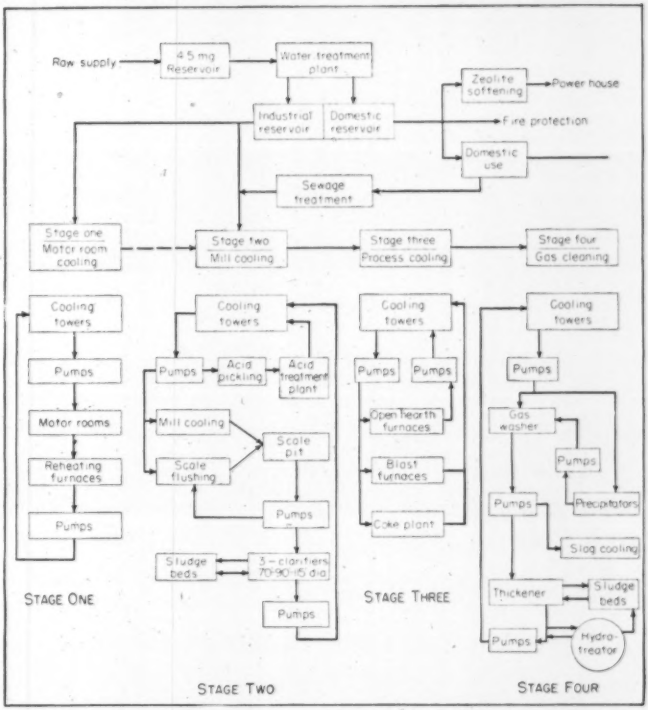
• **Operating the system**—This entire water system is under the direction of Harry Riegel, superintendent of utilities at the Kaiser plant, who has been with the system through design, construction, and now operation.

When daily water use increases beyond the desirable point, Riegel starts looking for trouble. In every case so far, he has been able to locate the source of excess use and keep after the particular operating department at fault until corrective measures have been taken. The conservation system is dependent not only on a well-planned layout but on careful day-by-day operation.

The Kaiser steel plant, including the water system, was designed by Kaiser Engineers under the direction of George Havas, chief engineer. S. O. Harper, former chief engineer of the U. S. Bureau of Reclamation, has acted as consultant for Kaiser Engineers in recent years on water matters.



ACID DISPOSAL is completed in this 50 ft. dia. thickener. Scum is formed by acid-lime reaction. The water is fed to the second-stage industrial system.



FLOW DIAGRAM shows how water is conserved through reuse in four stages.

Steel Scrap is Very Scarce!

You have given your sons to the Armed Forces

You have devoted your plants to the defense effort

You have joined Civilian Defense

You have bought Defense Bonds...given your blood

Now... will you turn in your scrap?

Without vital scrap, the steel so desperately needed cannot be made.

Round up your scrap — call in your scrap dealer *TODAY!*

The Colorado Fuel and Iron Corporation

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CLAYMONT STEEL CORPORATION, Claymont, Del.
THE CALIFORNIA WIRE CLOTH CORPORATION, Oakland, Calif.
WICKWIRE SPENCER STEEL DIVISION, New York, N.Y.

HEAVY TIMBER OUTRIGGERS riding rollers over pairs of 12-in. H-beams support part of a 125-ton load as it crosses a California highway bridge. Such load distribution made possible moving of three 90-ton rotors for generators on the Owens Gorge project of the Los Angeles Department of Water and Power. Moving generators 75 miles from rail head to plant took 11 hours each.

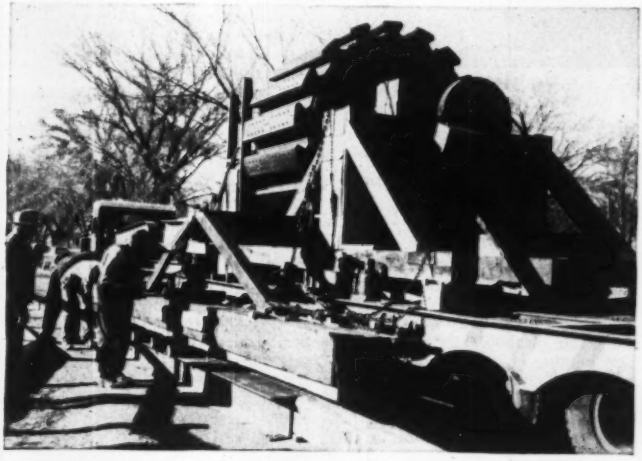
Too big for the bridges

How to move too heavy cargoes across bridges by use of special load distributing devices

Clayton M. Allen
Engr. in Charge, General Plant Div.

Thomas H. Mullen
Supt. of Transportation

Los Angeles Department of Water and Power



CALIBRATED HYDRAULIC JACKS assure loading of outriggers to design load. Outriggers take part of trailer weight off of wheels by lifting against 14-in. H-beam fastened to trailer by 2-in. dia bolts.

GROSS LOADS of 125 tons were safely moved over seven California highway bridges recently by using outriggers to spread the load.

Involved were three 90-ton rotors for generators on the Owens Gorge project of the Los Angeles Department of Water and Power. Outriggers riding rollers distributed part of the heavy trailer load to pairs of 12-in. H-beams laid on the bridges.

Practically all states require permits for moving overloads over the highway system. In issuing such permits, strength of bridges along the proposed route of travel is usually the controlling factor. In this California instance, the state officials were willing to permit the load to travel the state highway over the 75 miles between the railhead at Lone Pine, Calif., and the Owens Gorge project. However, they were concerned about the heavy load on the bridges. Accordingly, this load distribution method was developed by power department and transportation men in cooperation with highway officials.

The outrigger on each side of the trailer is a 12x16-in. timber 16 ft long. It rides on 6-in. dia concrete-filled steel rollers that in turn roll over pairs of 12-in., 53-lb H-beams. The beams come in 40-ft lengths.

Function of the outriggers is to take a portion of the trailer load and distribute it over the bridge deck. A considerable part of the load still rests on the wheels of the trailer, however.

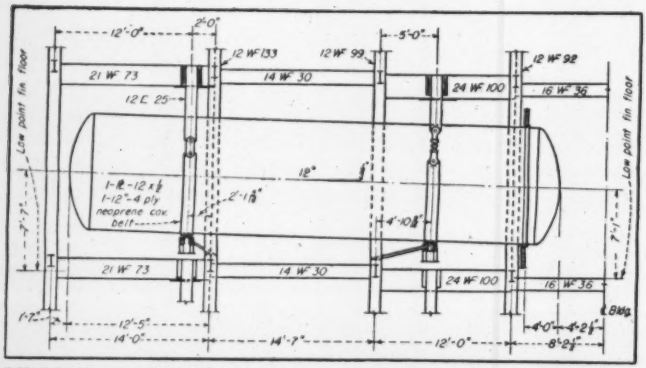
Calibrated hydraulic jacks gage the exact portion of the load supported by the outrigger. A jack is mounted between each outrigger and the 14-in. H-beam fixed across the trailer.

The double semi-trailer unit is capable of hauling 110-ton loads. The load rides in a low-bed trailer that has double eight-wheeled axles at the rear. The yoke of the low-bed trailer rides on a semi-trailer that has a similar double set of axles with eight wheels each. Yoke of this latter semi-trailer rides on the tractor unit.

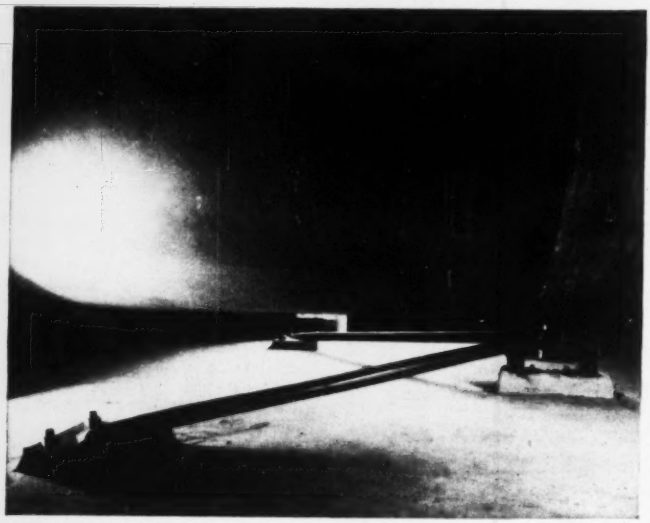
Even with the outriggers supporting 33 tons of the load, there is still a maximum of almost 36 tons on the forward set of eight-wheeled axles. Maximum load on a single wheel is on the front wheels of the tractor, being in excess of 3 tons on each.

The steel H-beams were handled by a 20-ton capacity truck crane that placed them along the roadway and reloaded them on a following truck after the load had passed over each bridge. With this arrangement the total time required for each of the last two rotors to make the 75-mile trip was about 11 hours.

State highway officials restricted the moving to daylight hours, with no move on weekends or holidays.



TWO-POINT SUSPENSION for 43-ft-long tank distributes load among eight columns to provide near-even pressure on foundation material. Unequal pressure may jeopardize foundations of five-story building housing tanks and of surrounding buildings.



LATERAL SUPPORT is provided by 6-in. nipple welded to ½x12-in. strap supporting tank. Diagonal-type support is anchored at a floor beam. These braces keep the tank from swinging, develop no vertical support.

Sling supports for beer tanks permit uniform foundation loads

Site and foundation conditions complicated support of 56 glass-lined beer fermentation and stock tanks for a recently completed brew house built by the San Francisco Brewing Co. These conditions led to the support of these tanks by a two-point method using ½x12-in. steel slings. (Such glass-lined vessels are usually supported at each end.)

Under the building site is a 51-ft layer of sandy material including both loose and well consolidated layers. Beneath this is a considerable thickness of soft blue clay similar to bay-bottom deposits. This entire area is settling at the rate of about 1 in. a year, perhaps because of gradual squeezing of the soft clay back to the bay due to the heavy sand overburden.

Because the area is subject to settlement, a prime consideration in the design of the building was to equalize foundation pressures to minimize possibility of differential settlement. Besides that, the square block occupied by the brewery is now almost fully occupied. This added the requirement that no highly concentrated loadings be developed adjacent to existing brewery buildings lest differential settlement be established in such structures. Use of piles was ruled out because of possible damage to existing buildings.

The new beer stock house consists of 56 tanks, each 786-bbl capacity. The tanks are 43 ft long and 10 ft in diameter. They are arranged in two batteries, each four stories high. Size of the tanks was limited by rail shipping conditions.

Normal procedure would be to support the tanks at each end. In this instance, however, that would result in heavy load concentrations directly under these tank supports. It was for this reason that the engineer developed the two-point suspension.

• **Straps do job**—Each tank is supported by two steel straps (½x12-in. in section) hung from girders forming part of the building framework. The exact point at which these hangers were attached to the girders was so located as to make the footing loading as uniform as possible. That is, an effort was made to distribute the tank loads to the building columns so that, with all dead and live loads considered, uniform foundation loading would result.

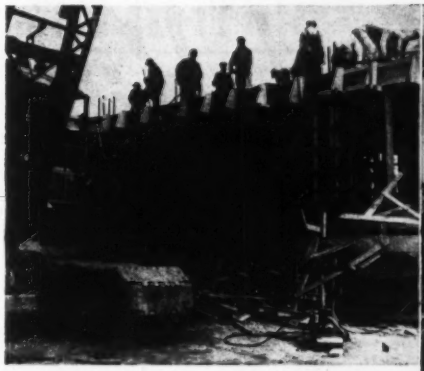
There was some doubt in the minds of the tank manufacturers that this type of support could be developed. Their prime concern is that the thin glass lining remain intact without being subjected to cracking. (Because of the glass lining there could be no penetration of the tank shell.) When it was demonstrated that the suspended system would mean no more than normal distortion of the tanks, the manufacturer agreed to the support system.

To prevent the tanks from swinging, a lateral brace that developed no vertical support was placed at the base of each hanger. This brace was tied into the closest floor beam by diagonal members.

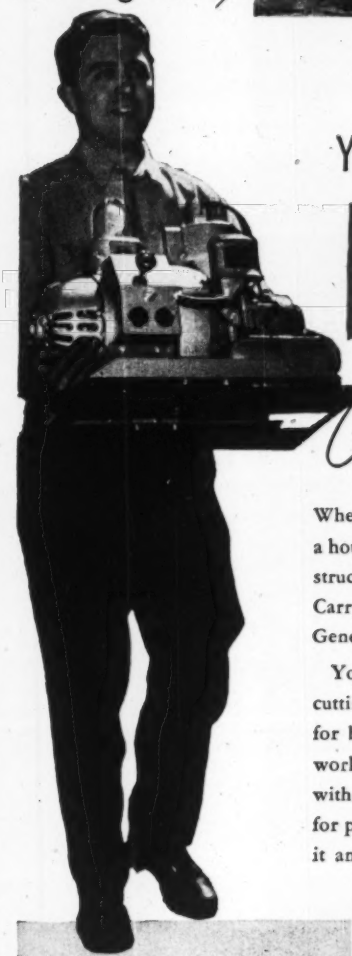
For the brewing process, one end of each tank was suspended lower than the other. To allow adjustment in the height of the low end of each tank during installation, the hanger at that end and was equipped with turnbuckle devices. Thus, exact elevation could be set on installation of the tanks.

Structural design of the new beer stock house, including development of the two-point tank support, was done by Ray N. Moore, civil engineer. Tanks were manufactured by the Pfaudler Co. for the San Francisco Brewing Co.

On Big Jobs〉



On Small Jobs〉



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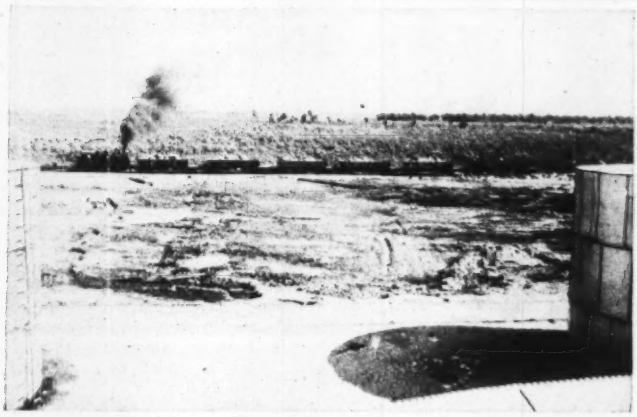
READER COMMENT



THIS RAILWAY, built by the Raymond Concrete Pile Co., antedated the one shown in the May 24 issue by about five years.

Liberia's first railway

Sir: In your May 24 issue you have a picture captioned "Liberia's First Railway." As so often happens when a "first" is claimed, exceptions are in order.

In the case of Liberian railroads, the one pictured by you now being constructed for hauling of ore from Bomi Hills to the Port of Monrovia was preceded by about five years by a standard-gage railroad constructed by the Raymond Concrete Pile Co. during the construction of that port. That railroad, operated for over two years, involved some 20 miles of rail line and a rolling stock of over 100 cars and 9 locomotives.

The writer was chief engineer during the period of operation and would appreciate your making note of the fact that an error was made in your issue of May 24.

I am not sure that the railroad which we constructed was the first in Liberia, but it certainly did much to acquaint the natives of Liberia with railroad operation, a fact which is undoubtedly proving helpful in the future industrialization of that country.

F. R. Sherman
Teaneck, N. J.

Reinforced brick masonry

Sir: Those of us who have long been engaged in the promotion of reinforced brick masonry were very glad to see the article on the Pacific Gas and Electric Company power plant in the July 5, 1951, issue of ENR. We are sure that your coverage of the project will bring the method to the attention of many engineers who will immediately recognize its many advantages.

We would like you and your readers to know that the Structural Clay Products Institute maintains a staff of engineers in fifteen regional offices through the country who will be glad to answer any question on RGBM (Reinforced Grouted Brick Masonry). This consulting service is at the disposal of any engineer or architect.

They have sound slide films on the Pacific Gas and Electric Company power plant which will give any group a close up view of the construction details. Local engineering groups who are interested in the method can see the film by writing to The Structural Clay Products Institute, 1520 18th Street, N. W., Washington, D. C.

C. T. Grimm
Staff Engineer
Engineering and Technology
Wash., 6 D. C.

Realistic road studies

Sir: It is gratifying to read your editorial "Need for Road Restudy Recognized" in the June 7 issue, p. 21. For several years too much of the highway thinking was on future planning for the next generation without sufficient recognition of highway maintenance and betterments which can be accomplished in the near future at a reasonable cost.

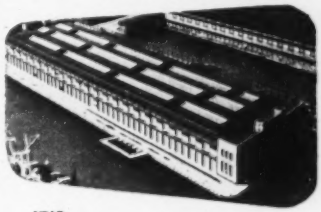
Fred E. Swineford
Engineer-Director
Macadam Pavements, Inc.
Columbus, Ohio

MOST MODERN PIER

At Philadelphia's magnificent new Pier 80, built by Hughes-Foulkrod Company for the Department of Wharves, Docks and Ferries, DAREX AEA concrete was used throughout. One big reason was increased durability—better resistance to sea water action.

USES
MOST DURABLE CONCRETE

DAREX AEA concrete is doubly durable. It is more impermeable — it resists freezing and thawing. During construction, DAREX AEA places easier with less water, bleeds less, finishes quicker, does a better job on all concrete construction work.



IT'S
DAREX AEA
CONCRETE!

Darex AEA is the only catalyzed air entraining agent on the market today. It is *not* a by-product — it is specifically formulated for making air-entrained concrete.

Darex AEA is in use everywhere on every type of concrete construction . . . and in ready mix and concrete products plants using every known type of aggregate.

Darex AEA is conveniently available in distributor warehouse stocks throughout North and South America and in countries abroad.

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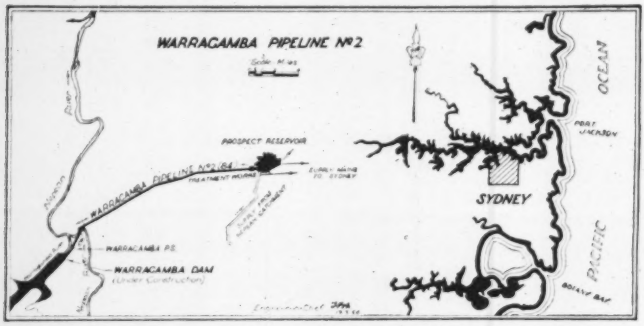
Cambridge 40, Massachusetts
Chicago 38 Montreal 32
DAREX REG. U.S. PAT. OFF.

FOREIGN



Production line methods speed large Australian water pipeline

The huge Warragamba water supply project (ENR Dec 19, 1946 Vol. p. 827) involving the erection of a dam with storage capacity of 1,412,000 acre-ft and the construction of a pipeline with a maximum gravity discharge rate of 180 mgd is now under construction by the Metropolitan Water Sewerage and Drainage Board of New South Wales, Australia.

The arc-welded pipeline will be the largest ever built in Australia. Design calls for two lines of 110¾" outside diameter pipe, (nominal bore 106" after concrete lining) joining with 3 lines of 87¼" outside diameter pipe (nominal bore 84") and extending 17 mi between the Warragamba Dam and Prospect Reservoir. At present one line is being constructed, partly of 106" and partly of 84" pipes. More than 20,000 tons of steel will be required.

The Warragamba project has been of widespread interest throughout Australia, primarily because of the national importance attached to it. In a drought period during 1934-42 dwindling water reserves placed the city of Sydney in a most serious position. This project will more than quadruple the existing storage capacity.

• **Pipeline details**—The 106" pipes are situated at the Warragamba end, and are for the most part in tunnels. Two miles from the Warragamba Dam, near the point where the line crosses the Nepean River, the two 106" pipes will join with 3 lines of 84" piping, which will carry the water the remaining 15 mi to the Prospect Reservoir. For the greater portion of its length the pipeline is above normal ground level, but at a number of sections it is necessary to place pipes in cuts and tunnels to keep the line below established hydraulic gradient.

The pipeline is being built to the design of the Metropolitan Water Sewerage and Drainage Board by three companies: Hume Steel Ltd., Mephan Ferguson (N.S.W.) Pty. Ltd., and Mort's Engineering Company. Transporting the pipe lengths, which weigh up to 17¼ tons each, from their factories to the line position is effected by semi-trailers fitted with cradles. A. Pittman Pty. Ltd., are the sub-contractors for the transportation of the pipes.

• **Construction**—Pipe is manufactured on a production basis. All welding, except that involved in the fabrication of special pipes and bends, is performed using automatic submerged arc welding equipment.

The procedure adopted in joining pipe sections together is to use circumferential butt joints in the production of 15 ft lengths, but ball and socket type lap joints to connect three 15-ft lengths for delivery of 45-ft lengths to the job.

As soon as the internal and external butt welds have been completed, the pipe is visually inspected and passed to hydrostatic testing. Joints are tested to 16,000 psi steel stress.

The next operations are in protecting the pipe against corrosion. The pipe is acid pickled, thoroughly washed, and finally treated in a phosphoric acid bath. When dry, it is coated on the outside with a thick zinc base preparation and oven baked at 400°F. This treatment provides a hard coating, with excellent corrosion resistance.

• **Lining**—For internal protection, the inside surface of the pipe is coated with bituminous material and metal screenings, followed by a 1½-in. layer of concrete. The bituminous material is applied hot, while the pipe is rotated at relatively low speeds on power driven rollers. While rotating, it is coated with metal screenings, which set hard in the bituminous compound when cooled and afford excellent bonding with the concrete.

The concrete is applied centrifugally. A measured quantity of cement mortar consisting of 1 part of cement to 1.4 parts of sand and 2.8 gals. of water per cubic foot of cement is evenly distributed through the pipe and consolidated and smoothed.

The final factory operation is the fitting of the rocker arm brackets, which are handwelded in position on the H-section support rings. On completion, slings are placed around the pipe, which is loaded by crane for transport to location.

• **To the Job**—Mobile cranes and specially made straddle trucks are used for unloading and placing the pipes. The 45 ft length is lifted by 2 cranes which are moved to bring the pipe nearly into correct position. The spigot end is inserted in the socket end of the pipe previously laid, and a small length of weld made at the top of the joint, with the other end of the pipe supported a little high. Thus, as the pipe is lowered to its correct level the spigot is pulled into the socket to make a close fit. Screw jacks are used on the stiffening rings to adjust levels and alignment, with reference to survey stakes in the ground.

Straight line anchor foundations contain from 35-50 yd. of concrete, ranging up to 293 yards or 520 tons at bends of 14 deg deflection. Since supports are spaced at intervals of 44' 9" the total gravity loading over this span, is 65¾" tons when the pipe is filled with water.

As soon as each section of pipe has been accurately aligned it is field welded. The field joints—all ball and socket lap type, are welded inside and out, the procedure mainly used being welding upward.

• **Point 4 aid to Iraq**—The United States and Iraq have signed a Point 4 general agreement. The legendary site of the Garden of Eden, Iraq is taking action to control the flood waters of the Tigris and Euphrates rivers to bring the country back to its historic productivity. Irrigation and flood control is expected to double the 12,500 sq. mi. now under cultivation. Iraq is the 22d country to make a technical cooperation agreement with the U. S. under the Act for International Development.

(*Continued on page 50*)

For greater yield in plant or field . . .

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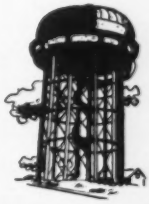
BIG ROCKWELL METERS



Big water meters are a major investment. Their true worth must be based on their revenue earning performance—their freedom from breakdowns and sticking—their economy to repair.

Cost-minded water works engineers specify big Rockwell meters because they will earn more revenue and yield more service per dollar invested. You'll find them simple, easy to repair, and constructed with typical Rockwell care from the finest materials obtainable.

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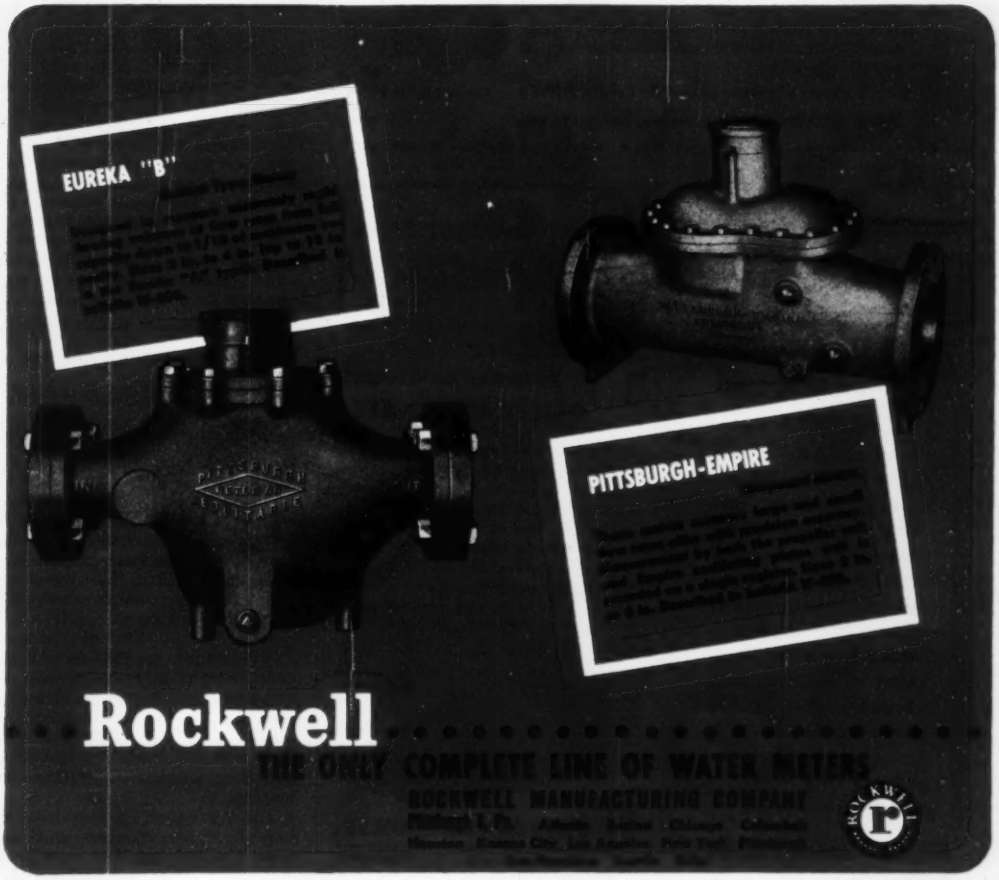
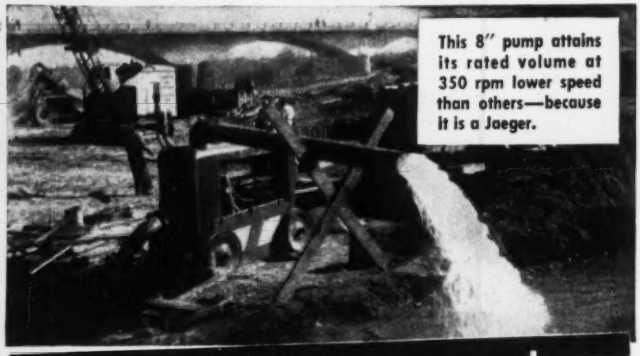


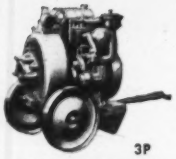
2100 gallons every 1150 revolutions



This 8" pump attains its rated volume at 350 rpm lower speed than others—because it is a Jaeger.

JAEGER pumps pull stronger, pump longer

Because Jaeger dewatering pumps are built oversize, to produce full rated volume at easier speeds, they also hold more priming water and are subject to less abrasive wear. Combined with double priming action and positively lubricated seal (Jaeger patents) they insure fast, sure priming without vapor lock on the toughest pulls, sustained efficiency on non-stop pumping, and thousands of extra hours of service from both pumps and engines.



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Others 1½" to 10"

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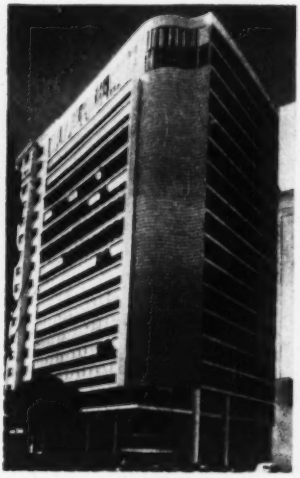


MODERNISTIC OFFICE BUILDING—Newest addition to Rio de Janeiro's modernistic office buildings is this "Edificio Seguradoras," at the corner of Rua Senador Dantas and Rua Evaristo da Veiga. Designed by M.M.M. Roberto and built by Escritorio Joao Carlos Vital, it cost approximately $2,500,000. The structure has two basements and 18 stories of which eight have central air conditioning. Six elevators will afford service without the necessity for long queues which are an accepted part of business life in Rio where almost all buildings have too few elevators. An unusual feature of the building is the use of adjustable sunshades on the side exposed to the afternoon sun.

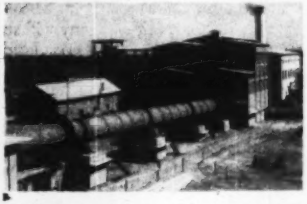
U. S. technical know-how studied by visiting scientists

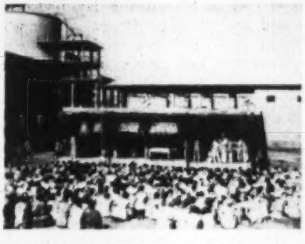
Forty-two foreign research students in science, engineering, architecture and regional planning will wind up a three month's study at Massachusetts Institute of Technology September 14 in the second year of ECA sponsorship of a European and Southeast Asian educational program for interchange of technical know-how among foreign countries and the United States.

The Foreign Student Summer Project started in 1948 by M.I.T. undergraduates as a contribution to European recovery and world understanding. Last year's 36 students left behind them significant discoveries in their respective fields and took back with them lasting ideas of American training.

This year's students, forty from fifteen European countries and two from Thailand, are, like their pred-

ecessors, university graduates under 32 years of age with a minimum of two years' experience in industry, teaching or research. They will join up with forty M.I.T.-sponsored foreign students from non-ECA countries. After their study at M.I.T., the group will tour industrial plants in the East and Mid-West under sponsorship of the National Association of Manufacturers.





INDIAN CEMENT FACTORY – The upper picture is a view of the Associated Cement Companies' new factory at Sevalia in Bombay State. The site was chosen because of the proximity of limestone and bauxite. This new factory has been built and equipped almost entirely from Indian resources. The lower picture shows the Indian cement workers assembled at the opening ceremony of the Sevalia plant.

India's cement production is increasing rapidly

The recent opening of Indian Associated Cement Companies' fifteenth factory at Sevalia (the first cement factory in Bombay State) marked India's attainment of almost complete self-sufficiency in cement. She is now ready to seek export markets in other Asian countries.

Initial production of the new factory will be 100,000 tons per year, moving gradually up to 200,000 tons, its rated capacity.

India's total cement production this year is expected to be 2,200,000 tons and in 1952 2,750,000 tons.

Of all building materials, cement has registered the lowest price increase in 1950–only 83%, while iron and steel have gone up by 163%, bricks by 233%, stone-metal by 284% and sand by 335%.

(Continued on page 52)

Ever wonder why you *never* see a scowling, fagged operator on the Baker, A-C team? Here's why:

They just plain love that "doze-in-your-armchair" ease of control; that positive hold without throttle jockeying; that fraction-of-an-inch accuracy . . . that quick, direct lift; that positive down-pressure which puts almost all the tractor weight on the cutting edge; *and* the "roll-action" of the blade which leaves more tractor power for push. Because "Easy DOZE It!"

That's why you see the Baker, A-C team more and more wherever dirt has to be moved fast and efficiently. When operators *prefer* it, you can count on it being the best money-maker.

Specify Baker Bulldozers, Gradebuilders or Root Rippers for your new A-C Tractors . . . Baker makes engine-mounted hydraulic control models and cable-control models for the entire line of Allis-Chalmers crawlers. See your Baker, A-C Dealer. THE BAKER MANUFACTURING COMPANY, Springfield, Illinois.

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FOREIGN . . .

U. S. firm gets Point 4 contract for Jordan

The Point Four Administration (of the U.S. State Department) has signed a contract with the New York engineering Firm of Knappen, Tippetts, Abbett, to carry out a water development program for the Kingdom of Jordan.

The engineering company will send to Jordan a team of experts, headed by R. D. Gladding of New York as resident engineer, over a six-month period. The group will vary in composition, and will conduct demonstrations and training programs for the restoration of existing underground storage reservoirs (cisterns) some of which date back to the days of Roman and Byzantine emperors. Other work will include direct engineering work to restore and construct village reservoirs and small catch basins.

Foreign Briefs . . .

• **Puerto Rica moves ahead**—Anatole Solow, housing expert, Pan American Union, arrived in San Juan recently to study housing development and new construction methods used in the island, and to observe facilities offered there for the establishment of the proposed Interamerican Housing Experimental and Training Center.

• **Big Marshall Plan business**—Since the start of the aid program April 3, 1948, the Economic Cooperation Administration has allotted to Western Europe for Marshall Plan aid a total of $11,659,911,000.

• **Philippine economic development**—E.C.A. recently issued procurement authorizations amounting to $3,080,000 for the Philippines to help launch five major economic development projects as follows:

(1) Establish cottage industries in rural areas.
(2) Develop the island's coal mines and rehabilitate the school of mining at the University of the Philippines;
(3) Provide equipment to complete a textile mill now under construction.
(4) Survey the island's railroads as a preliminary to their rehabilitation; and
(5) Build houses for low-income urban residents.

LOCK JOINT
CONCRETE PRESSURE PIPE

The Choice of Five Capitals

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BOGOTA • CARACAS • CIUDAD TRUJILLO

Five capital cities under five different flags, but with one important factor in common . . . they all have major water supply lines built of Lock Joint Concrete Pressure Pipe.

. . .

This unanimity of choice can be attributed to the sound design, high quality of materials and excellent workmanship which goes into the production of Lock Joint Concrete Pressure Pipe. The ample steel reinforcing provides a rugged pipe which will withstand both high internal pressures and unusually heavy overburdens. Walls of carefully proportioned concrete prevent corrosion or tuberculation assuring durability and permanently high carrying capacity. Flexible expansion joints at every joint provide easy installation and assure permanent water tightness under all conditions of service.

. . .

The test of time has proven Lock Joint Concrete Pressure Pipe lines to be extremely economical to operate, requiring practically no maintenance or repairs throughout an estimated useful life of more than 100 years. Yet the pipe is amazingly low in initial cost.

. . .

For your next water transmission line involving pipe 16" in diameter or larger, specify Lock Joint, the capital pipe chosen by capital cities because of its durability, dependability and economy.

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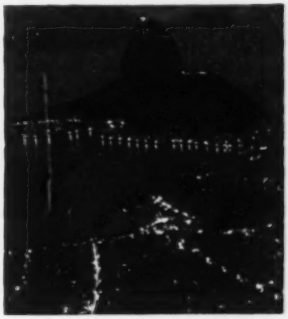

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SCOPE OF SERVICES—Lock Joint Pipe Company specializes in the manufacture and installation of Reinforced Concrete Pressure Pipe for Water Supply Distribution Mains in a wide range of diameters as well as Concrete Pipes of all types for Sanitary Sewers, Storm Drains, Culverts and Subaqueous Lines.

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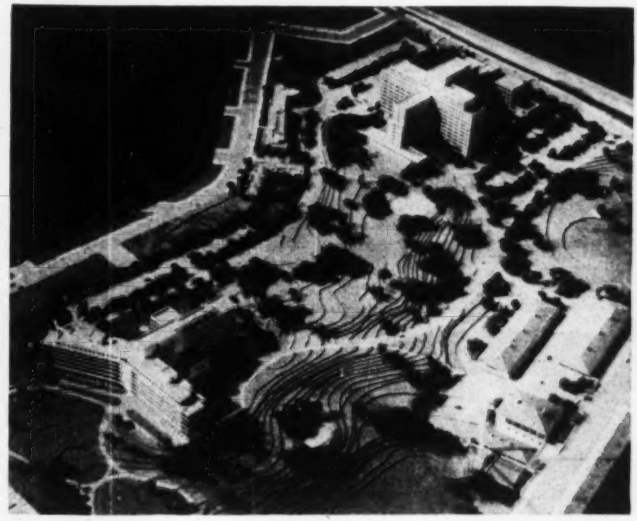

DOUBLE HEALTH IN THE BRONX—Completion of the first unit of the Bronx Municipal Hospital Center is scheduled for the first half of next year. A Y-shaped, 500-bed tuberculosis hospital, it is shown above in the foreground. Cost: $14,000,000. Large building upper right is the $17,500,000, 800-bed general hospital to be started this fall. Pomerance & Breines were architects. Engineering firms on the job are Guy B. Panero and I. Hellerman, both of New York City. The photo is from a model.

Port of Baltimore Commission to be named as City Council OKays new plan

Baltimore City Council has unanimously approved a bill creating a new Port of Baltimore Commission following authorization by the electorate of a $12,000,000 bond issue in port improvements under the new plan. (ENR Apr. 19, p. 58)

The main difference between the new Port of Baltimore program and that which has been in operation over the years is this: Where the old plan did not allow private companies to hold title to facilities even after payment for them in full through leasing, now the new arrangement allows private companies to not only build in conjunction with the city, but to own facilities built.

A seven member board will govern the port. Its members serve on a voluntary basis. Members will be named by officers of the state and city, by local unions and commercial groups.

The new commission is expected to be functioning by the end of the month, sometime between July 20 and July 31st. Commission members named so far include John F. Rowley, Jr., president of the Maryland Motor Truck Association and Rowley Transportation Co. Rowley takes the truckers post on the commission.

Nominee of the railroads is A. C. Clarke, chief engineer of the Baltimore and Ohio Railroads. Governor Theodore R. McKeldin has appointed John Kronan to represent the state. The Association of Commerce has appointed Frank W. Roberts, and the Steamship Trade Association has named J. H. Treadgill. Seventh member on the commission will be the director of public works, Baltimore. This is an automatic appointment.

The new Commission plan results from a $50,000 port survey which recommends the ultimate expenditure of $128 million for expansion and improvement.

The $12,000,000 recently authorized by the voters for the new plan is the first request made to borrow money under the $30,000,000 debt authorized the city by the Maryland legislature this year.

The state enabling act permits use of port development money to build access highways and streets, to buy floating equipment needed to keep the

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★ Greater Dependability

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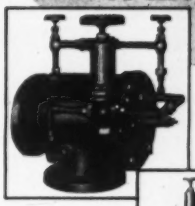
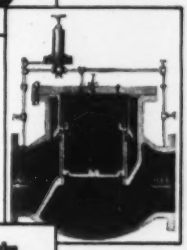
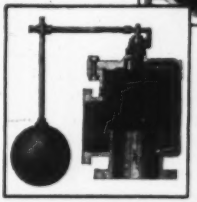


G-A Surge Relief Valve. Bulletin W-2 sent on request.



G-A Water Pressure Reducing Valve. Bulletin W-3 contains the technical information you want.



G-A Cold Water Float Valve. Bulletin W-8 will be of interest to you.

The patented air and water double cushioning feature inherent in all G-A Valves prevents any slam or hammer.

Let our reputable engineers help you with your water control problems.

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YES, the White Engineers' Transit is a fine engineer's instrument — now made even finer with the addition of *covered leveling screws* and *coated optics*.

Covered leveling screws assure you of smooth, easy, precise leveling at all times, under all kinds of conditions for the life of the instrument itself.

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Compare the David White Engineers' Transit with all others—feature for feature — price for price. Compare them for accuracy — long durability — built-in quality. To meet your preference, this instrument is available with "U" or "A" type standards. You'll find you'll buy right when you buy a David White.

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MUNICIPAL . . .

port open at all times and to pay commission administrative costs. But the city does not plan to use any of the current $12,000,000 for these uses.

The loan money will be used to acquire property adjoining the Patapsco River and its tributaries, to improve existing facilities, and build new on land already owned by the city.

Brownsville Tex. plans major city improvements

Brownsville, Tex., is launching a $7,500,000 utility and municipal improvement program primarily devoted to utility expansion.

Current plans call for power plant and line expansion in amount of $3,000,000. More than $1,000,000 is planned for sewerage plant and line, and similar expenditures for expanding the city's water plant.

The rest of the plan includes a master drainage system, some street paving and repair, storm sewers, and a public auditorium, library and swimming pool.

The master drainage system became a necessity last year when the town was flooded by a seven inch rainfall which came down in 24 hours of time. For years Brownsville has been dumping raw sewage in the Rio Grande: hence the need for the sewerage treatment system. But City plans for a civic center may have to wait on materials.

Jacksonville to test amusement clamp down

Patriotism is the appeal planned by Mayor Haydon Burns of Jacksonville, Fla., with which to gain relaxation of restrictions on new buildings for amusement purposes in his city.

Burns plans to go to the National Production Authority to plead an exception for his city in order to provide recreation for thousands of Navy men stationed there.

Under consideration are a new sports center to be located around the large Gator Bowl Stadium which would include a sports arena seating 8,000 persons, and a baseball park seating 6,000. The arena would double in brass as a municipal auditorium until the emergency allows a more elaborate auditorium to be built.

The city already has legislative authority to issue up to $950,000 of revenue certificates for the sports arena, ball park, and related facilities.

(*Continued on page 59*)

Raymond MAKES 5 TYPES OF CONCRETE PILES

1. STANDARD . . . 2. STEP-TAPER . . . 3. PIPE STEP-TAPER

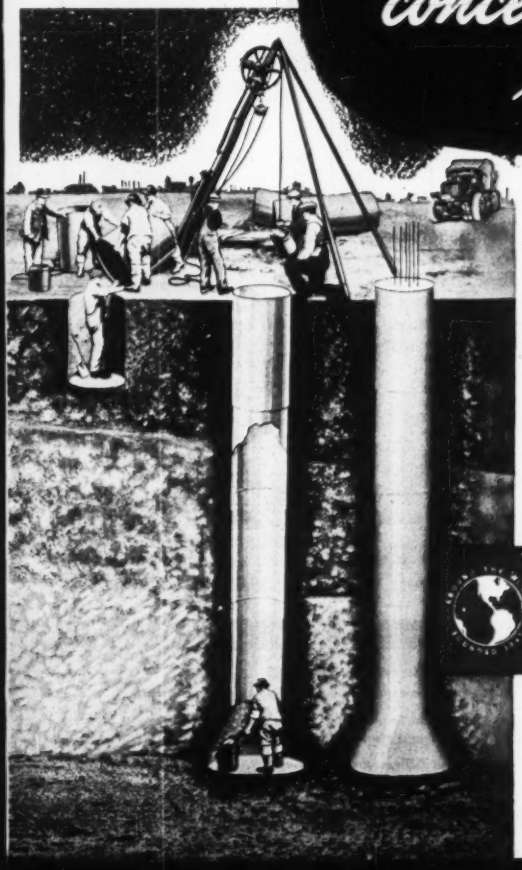
4. COMPOSITE . . . 5. GOW CAISSONS

Raymond installs every type of pile: cast-in-place concrete, precast concrete, steel pipe, wood and H-beam. Raymond operations include underpinning, borings and soil investigations, waterfront construction and harbor and river improvements, and cement mortar lining of oil and water pipe lines 4" to 144" in diameter by the Centriline Corporation, a Raymond subsidiary.

5. GOW CAISSON PILES

For heavy concentrated loads . . .

At left, excavating starting pit and placing first cylinder. At center, excavating bell at bottom of the steel-lined shaft. At right, the completed caisson.



Raymond Gow caissons are efficient and economical for supporting heavy concentrated loads under certain soil conditions. The Gow method consists of hand or machine excavation carried on inside of telescoping steel cylinders. Where the caisson rests on hard ground, a bell is usually formed at the bottom to distribute the load over a large area. Where the caisson rests on rock, the bell is usually omitted. After excavation is completed, the steel cylinders are removed as the concrete is poured.

Because heavy equipment is not required and the steel cylinders are re-usable, Gow Caissons are economical in most soils. Your inquiry is cordially invited.

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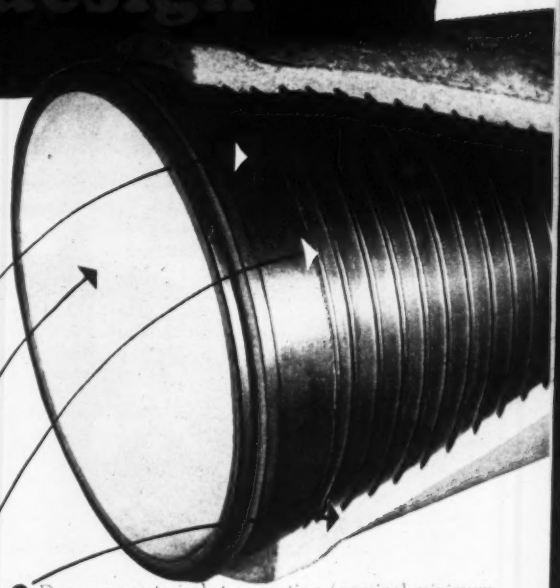
BRANCH OFFICES: Boston, Syracuse, Philadelphia, Baltimore, Washington, Pittsburgh, Atlanta, Miami, Houston, Kansas City, St. Louis, Cleveland, Chicago, Detroit, Salt Lake City, Portland, San Francisco, Oakland, Los Angeles and principal cities in Latin America.

Superior strength . . . economy of design



In AMERICAN CONCRETE CYLINDER PIPE these *four* advanced design features give you *greater strength* with *greatest economy* of steel components.

❶ Steel cylinder provides a positive water seal or membrane, as well as part of the required total steel area*. (Thickness of the cylinder varies according to pipe diameters and general design requirements). Each cylinder is hydrostatically tested to a unit stress of at least 22,000 psi.

❷ Centrifugally spun concrete lining is of proper mixture and dense compaction. Its thickness adds rigidity and strength through "arching" effect (nominal minimum lining thickness is ½" for 14" and 16" diameters and ¾" for larger diameters). Cylinder is lined prior to rod wrapping.

❸ Steel reinforcing rods, which together with the steel cylinder provide the total required cross-sectional steel area*, are wrapped under measured tension and accurate spacing around the concrete lined cylinder. The section modulus is thus increased while the concrete lining is placed under slight initial compression. The result is, in effect, a modified prestressed design.

❹ Dense concrete jacket or coating (nominal minimum 1" thickness over the cylinder) is "locked" around the rod wrapping over the entire surface of the cylinder. This is an important structural feature.

*Total cross sectional steel area is based on 13,500 psi max. allowable unit stress at the design operating pressure.

When selecting pressure pipe for your permanent water transmission main, do not overlook the inherent strength of American Concrete Cylinder Pipe to meet all normal conditions of internal pressures and external loads.

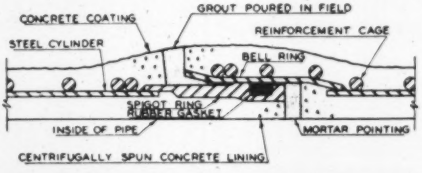
Economy of design, together with maximum sustained carrying capacity, ease of installation, and minimum of maintenance all contribute to the reduced cost of delivered water throughout generations of dependable service.

In practical tests for Underwriters' Laboratories, Inc., several sections of pipe were installed under 10' of earth cover and changes of inside diameter were measured by machinists' calipers at several points along each section. Average results were as follows –

	Vertical Diameters in inches	Horizontal Diameters in inches
42" Dia. Pipe	Minus .314	Plus .318
30" Dia. Pipe	Minus .052	Plus .050
21" Dia. Pipe	Minus .010	Plus .009

Subsequent examination of the concrete linings disclosed that they were sound and unimpaired under these extraordinary earth loads.

Throughout the West this superior pipe is demonstrating its advantages in actual operation. Complete information upon request.



American PIPE AND CONSTRUCTION CO.

Concrete Pipe for Main Water Supply Lines, Storm and Sanitary Sewers, Subaqueous Pipe Lines

P.O. Box 3428, Terminal Annex, Los Angeles 54, California
Main Offices and Plant—4635 Firestone Blvd., South Gate, Calif.

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MUNICIPAL . . .

Municipal bonds finance Tennessee textile plant

A textile plant costing $7,800,000 will be financed by municipal revenue bonds in Elizabethton, Tenn., the American Society of Planning Officials, Chicago, reports. The plant will employ 1,000 workers.

Under a Tennessee law, enacted this year, cities may issue revenue bonds to pay for the construction costs of new structures or to acquire factory buildings for lease to new industry.

Rentals from the buildings will be used to pay the principal and interest on the bonds, as well as maintenance and depreciation. The law stipulates that the bonds may not be redeemed by tax levies and that they do not constitute any indebtedness of the community. Bond issues must be approved by three-fourths of the voters at a referendum.

Elizabethton is selling $4,000,000 in revenue bonds for the initial financing of the plant. Rentals are expected to pay principal and interest and to furnish the balance of the needed $7,800,000.

The plant will be rented for five years at $1,560,000 a year, enough to amortize its cost. After the first five years, the company has nine options of five years each at a rental of $35,000.

Milwaukee playgrounds set for orderly expansion

Milwaukee is looking to the future and sees the need for $6,000,000 in new playgrounds over the next 11 years.

A program of park extensions has divided the city into six new districts, and listed proposed extensions under a system of priorities.

Recommendations to the common council of the city came from the land commission advising provision of more play space for children in all areas of Milwaukee.

The report was prepared by Gilbert Gregg, city planner, as a guide to overall adequacy of playground facilities. It specifically asked cooperation of the city's school boards in the areas of maintenance and reconstruction of existing sites, and requested the land commission not to lease any further lands now owned and purchased by it for playground expansion purposes.

The report estimated expenditures ranging from 1951's low of $300,000

(*Continued on page 60*)

STANLEY No. 311 SCALING HAMMER KIT

Many times faster than hand scaling — more convenient than air hammers — the Stanley No. 311 Scaling Hammer is completely self-contained. It needs no hose, no pump, no converter, no junction box. It's handy and light — quick to set up. Just plug into a nearby lighting circuit.

Operators use the No. 311 for hours without tiring. "Free-thrown" plunger (exclusive with Stanley) has no direct connection with motor mechanism. It hammers without the need for pressure on the handle. *Result*: there's no kickback, less vibration, and virtually no chance of breakdown.

The No. 311 weighs only 13 lbs. Packs in handy steel carrying case. Operates on either A.C. or D.C. Powerful motor and heavy duty seal type ball bearings assure long life. Wide variety of scaling tools available. See the No. 311 at your tool dealer's, or write for descriptive folder. Stanley Electric Tools, 438 Myrtle St., New Britain, Conn.

STANLEY

Reg. U. S. Pat. Off.

HARDWARE • TOOLS
ELECTRIC TOOLS
STEEL STRAPPING • STEEL

In the present situation, every day that passes emphasizes our need for quickly building up America's industrial and military muscle.

On the construction front, especially, speed is essential. Delays here can slow down the entire effort to expand production.

M-C&S has a record of getting big jobs done quickly and economically that is paralleled by few—and second to none.

We're geared to that kind of operation—have been for nearly a century. Time and again we have demonstrated our ability to speed construction jobs ahead of original schedule, and complete them at less than estimated cost.

We stand ready to bring to your construction requirements the experience and knowledge the present situation so obviously requires.

MERRITT-CHAPMAN & SCOTT
CORPORATION

FOUNDED IN 1860 . . . NOW IN OUR 91st YEAR

GENERAL OFFICES:
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MUNICIPAL . . .

to a 1952 high of $707,210 a year for the period under discussion.

The priority system was designed to give first importance to the creation of parks in the city's more highly congested areas. Generally speaking there is too little play space for children in such sections, the report said.

Anti-earthquake buildings urged by Seattle ASCE

The Seattle, Wash., section of the American Society of Civil Engineers has renewed its efforts to obtain earthquake-resistant buildings in the area.

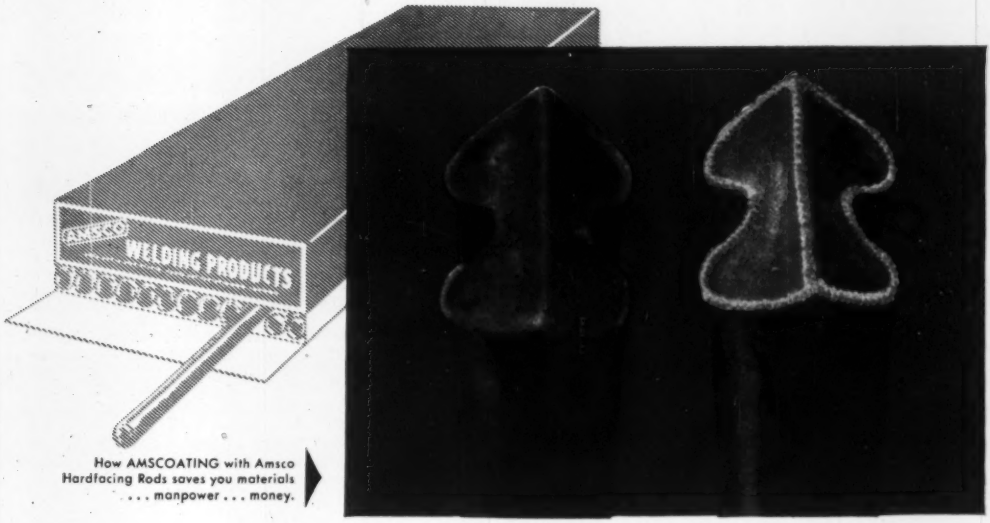
The Puget Sound Engineering Council, to which the section belongs, last year recommended that Seattle amend its building code to require that all new structures built within the city be designed and constructed to withstand earthquakes. (ENR May 18 '50, Page 56)

"Inasmuch as the earthquake hazard to the public has in no sense lessened since this recommendation, "the chapter wrote recently to Mayor William F. Devin, "and inasmuch as public and other structures continue to be built in Seattle which appear to be seriously in violation of this proposed ordinance and which would appear to constitute a public hazard, we would sincerely appreciate advice as to what action has been taken in this matter and what may be the present status of the recommendation."

The section also protested to Mrs. Pearl A. Wanamaker, state superintendent of public instruction, that "school buildings are continuing to be constructed in this area contrary to sound engineering principles for resistance to probable earthquake intensities." Mrs. Wanamaker denied the charge, saying that schools "include construction features designed for withstanding the strains of earthquakes."

The section has been on the warpath against buildings designed without regard to earthquakes since the area was shaken by a severe quake April 13, 1949.

• **City income tax**—Voters at Saginaw, Mich., have passed a city tax on personal income and business profits, ending a 4-year fight over how the city of 93,000 is going to finance badly-needed improvements. The one percent tax was approved by a vote of 9,030 to 5,432. The measure is effective for 10 years, and there is to be a reduction in real estate taxes. Estimated income from the pay tax is $1,600,000 a year, of which an estimated $800,000 annually will go for public improvements.



How AMSCOATING with Amsco Hardfacing Rods saves you materials . . . manpower . . . money.

Why will ONE of these bits LAST TWICE AS LONG?

AMSCOATING...stands for control of wear by Hardfacing...

Hardfacing rods—and recommendations for their use—are as sound as the manufacturer who makes them. AMSCO has been fighting wear for a half-century—first with Manganese Steel, and later with AMSCO Hardfacing Products.

If you have a problem of wear caused by impact, abrasion, heat or corrosion . . .

Find out how AMSCOATING can save you materials . . . manpower . . . money!

These bits are used by a Southern quarry for drilling blast holes. A combination of limestone and flint causes extreme abrasion—and a real problem of wear. In an attempt to cut replacement costs, labor and down-time, several makes of hardfacing rods were tried, but without much success.

Six years ago these bits were AMSCOATED with an Amsco® rod specially developed for combatting abrasion and impact.

Result? AMSCOATING did a job that had never been done before. The drill bits held their edges longer . . . averaged 60 hours of drilling—between regrinds—instead of 30. Maintenance costs and bit changes were cut in half!

AMSCOATING saves you money in terms of lower maintenance costs, less down-time . . . more production. *The actual on-the-job example cited above is one of the many applications that prove it!* Write today for illustrated catalog describing dollar-saving AMSCO rods . . . and the name of your nearest AMSCO distributor.

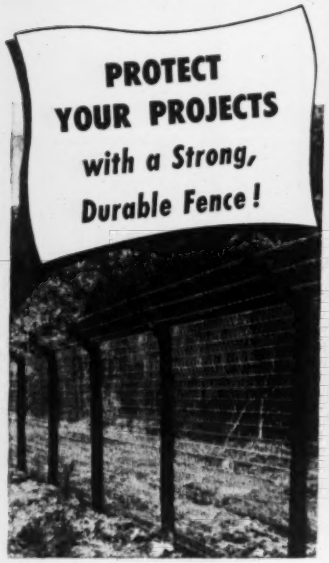
AMSCOATING

THE RIGHT WAY TO SAY HARDFACING

Brake Shoe **AMERICAN MANGANESE STEEL DIVISION**

379 EAST 14th STREET • CHICAGO HEIGHTS, ILL.

Other Plants: New Castle, Del., Denver, Oakland, Cal., Los Angeles, St. Louis. In Canada: Joliette Steel Division, Joliette, Que.
Amsco Welding Products distributed in Canada by Canadian Liquid Air Co., Ltd.



Fence built with Koppers Pressure-Creosoted Posts and heavy wire.

● Your completed projects, particularly those engaged in defense work, need good protection. And a fence built with Koppers Posts and heavy wire provides that protection.

Durable . . . Economical

Koppers Posts are made from sound, strong wood. They are pressure-treated with creosote to protect them against decay and termites. The pressure-treatment method is identical with that used by Koppers to protect utility poles, foundation and marine piles, and the timber in highway bridges. Koppers Posts give decades of service, making them extremely economical. They require no painting, and they never rust.

Other Preservatives

Koppers Posts, when treated with creosote, have a dark, warm color. They blend nicely with most surroundings. However, if you prefer wood posts that are easily paintable, Koppers will use a preservative other than creosote.

All Sizes Available

Koppers manufactures posts in any size you want — in any diameter, in any height. Besides fence posts, Koppers makes many types of treated highway posts. Write us for further information.

KOPPERS COMPANY, INC., Pittsburgh 19, Pa.

KOPPERS PRESSURE-TREATED WOOD

KOPPERS

MEN AND JOBS

GETS CERTIFICATE—Ernest F. Fox (center), formerly a civil engineer in the office of the Borough President of the Bronx, now retired, was re-elected financial secretary of the New York State Society of Professional Engineers for the 26th successive time. Arthur V. Sheridan (left), chief engineer, Borough President of the Bronx, presented Mr. Fox with a certificate commemorating the occasion during the Silver Anniversary Convention of the society. At the right is Edward J. Nunan, sales engineer, Buffalo Slag Co., and newly elected first vice president of the society.

New Appointments

Highway departments

Harvey W. Morley, former editor of the Angola Herald, has been named public relations director for the Indiana State Highway Commission, Indianapolis.

Leroy C. Moser, is now right-of-way engineer for the Maryland State Roads Commission

Government agencies

Robert R. Rose, Jr., of Casper, Wyoming, will take over the duties of assistant secretary of Interior early this month. Mr. Rose was formerly mayor of Casper. He succeeds G. Girard Davidson, will supervise The Bureau of Mines and the Geological Survey.

Francis F. Healy, Washington, D. C. surveyor, has been appointed to serve with the Redevelopment Land Agency.

Capt. Martin A. Kehart, Civil Engineer Corps, USN, formerly deputy chief inspector and acting chief inspector, Bureau of Yards and Docks, Washington, D. C., has returned from New York for duty as assistant chief of the Bureau of Operations. He relieves Capt. John R. Perry, CEC, USN, who is reassigned as commanding officer of Naval Construction Battalion Center, Port Hueneme, Calif. Capt. Perry was assistant chief of operations since October, 1948.

State, City and County

Paul Brooks, former assistant director of planning, Raleigh, N. C., has been named city planning director at Fayetteville, N. C. He previously has worked on city planning projects at Durham and Greenville, N. C.

Kenneth V. Byers of Yellow Springs, Ohio, has been named maintenance superintendent for Ohio parks.

W. R. Carlisle is city engineer, Fort Scott, Kansas.

David H. Fisher now heads the new Baltimore County Storm Drain Bureau. Fisher is 38 years old, and was formerly in charge of utility design and construction for the Maryland Department of Public Improvements.

W. Albert Haddock has been appointed chairman of the New Castle County, Del., Regional Planning Commission for a five-year term.

Elmo J. Paschall, has joined the sanitary engineering division of the City Health Department at Charlotte, N. C.

W. C. Tims, sanitary engineer in charge of the University of Miami's disposal plant has just accepted the new post of manager of Tampa's

(*Continued on page 64*)

Here's why 18-ton LeTourneau hauler *gets more work done*

Tournarocker's vertical dump puts entire load over the bank. Operator safely maneuvers giant hauler so rear tires are at edge of slope, while front drive wheels stay on firm ground.

Introduced about three years ago, LeTourneau Tournarockers have, today, gained world-wide acceptance on heavy hauling projects, from remote Arctic regions to the tropics. Working under severest conditions of climate, materials and terrain, these revolutionary haulers on giant rubber tires are proving their ability to get more work done and reduce off-road hauling costs wherever rock, ore, clay, or sand have to be moved.

Rolling on low-pressure 21.00 x 25 tires, Tournarockers haul through mud and sand where ordinary trucks can't go. Their rubber-tired traction and flotation minimizes production delays of bad weather and rough haul roads. Positive electric power steer, plus big multi-disc, 4-wheel air brakes, permit safe, high-speed hauling and turning on narrow, winding roads and steep, slippery grades.

90° turns within length of machine

At dump site, Tournarocker turns 90°, easily maneuvers to edge of bank. Front drive wheels stay on firm ground, while rear wheels rest on edge of loose, non-compacted fill. At flick of a switch, simple electric hoist raises body vertically . . . load dumps clear over bank. Rehandling and dozer cleanup are virtually eliminated.

9, 35, 50-ton sizes also available

Investigate this modern rubber-tired way of simplifying your heavy hauling projects. Your nearest LeTourneau Distributor can give you all the facts on this 185 h.p., 18-ton Tournarocker, as well as on 9, 35, and 50-ton models. See him or write us for complete facts.

At Kirkenes, Norway open pit mine, 215 miles north of Arctic Circle, 12 big Tournarockers are removing 25,000,000 yds. of rock overburden. Up to 40 tons are hauled each load . . . 12,000 tons each 24-hour day.

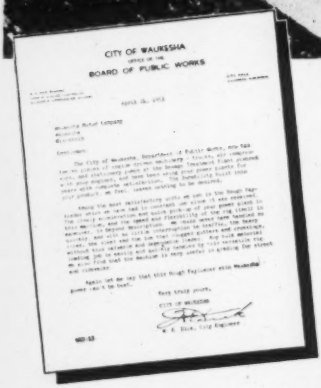
On Ontario highway relocation, 2 C Tournarockers replaced 15 two-ton and four-ton dump trucks, moved 400,000 cubic yards of rock, earth and sand. On typical 2-mile cycles, the 2 rigs averaged 3000 pay yards daily.

To speed progress of Algerian dam, 6 C Tournarockers were driven 236 miles over both paved and unimproved roads, through sand storms and heavy traffic, from the Port of Algiers to the project site in an isolated mountain region.

LETOURNEAU EQUIPMENT

R. G. LeTOURNEAU, INC. PEORIA, ILLINOIS

...you should hear what the home-town folks say about 'em



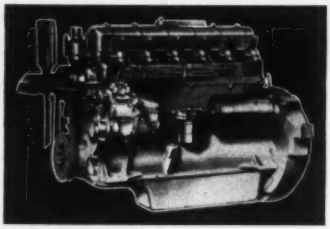
CITY OF WAUKESHA
BOARD OF PUBLIC WORKS

Payloader in use by City of Waukesha is powered by a **Model DLCA Waukesha Diesel Engine.** (The truck has a Waukesha Engine, too.)

● The home-town folks are not easily impressed. They know you and your product, too. Save your sales talk—they pay off on performance.

This comes to you direct—from the home of Waukesha Engines. And it's Mr. W. E. Dick, City Engineer, talking—"The City of Waukesha, Department of Public Works, now has twelve pieces of engine-driven machinery . . . powered with your engines. Among the most satisfactory units we own is the Hough *Payloader* which we have had in constant use . . . the lively acceleration and quick pick-up of your power plant in this machine, and the speed and flexibility of itself in maneuver, is beyond description . . . (it) handled so quickly, and with so little interruption to traffic, the heavy snows, sleet and ice that clogged gutters and crossings. Any bulk material loading job is easily and quickly handled by this versatile rig . . . also very useful in grading. This Hough *Payloader* with Waukesha power can't be beat."

Payloaders—tractor-shovels that dig, load and carry all types of material—are made by The Frank G. Hough Co., Libertyville, Ill., who power them with Waukesha Engines. Mr. Dick can tell you why. He has "been using your (Waukesha) power plants for years with complete satisfaction. The durability built in, leaves nothing to be desired." Get Bulletin 1411.



WAUKESHA MOTOR CO., WAUKESHA, WIS.
New York • Tulsa • Los Angeles

Model DLCA Waukesha Diesel Engine—six cylinders, 3¾-in. bore x 4-in. stroke, 265 cu. in. displacement, 85 maximum hp at 2600 rpm.

WAUKESHA *Diesel* POWER

136

MEN AND JOBS . . .

new $13,000,000 sewage disposal plant. Tims joined the university as sanitary engineer in March of 1948, is succeeded by Walter Lynn, a civil engineer graduate of the university.

Warren H. Van Arsdalen is superintendent of the new Delaware River Memorial Bridge, near Wilmington, Del. Van Arsdalen, a registered professional engineer, has been employed as engineer with the H. K. Ferguson Company, New York and San Francisco, contractors for the construction of the Chrysler Tank Arsenal at Newark, Del.

Industrial and Commercial

Stephen P. Curtis, chief construction engineer, Construction Engineering Bureau—Manufacturing Division, United States Steel Corp, has been assigned project construction manager in charge of building the Fairless Works, Morrisville, Pa.

Corps of Engineers

Lt. Col. George M. Cookson, executive officer, Chicago District Corps of Engineers, has been appointed professor of military science, University of Notre Dame, South Bend, Indiana.

Lt. Col. Joseph A. Smedile has reported for orientation before assuming duties as executive officer for the Jacksonville District Corps of Engineers.

(*Continued on page 67*)

MADE VICE-PRESIDENT—**Faye Evans**, New York construction engineer who participated in construction of the 70-story RCA Building at Rockefeller Center, The New York Daily News Building and other important structures, has been appointed vice-president of John W. Harris Associates, Inc., builders. He will be in charge of European operations for the Harris organization.

Remember –

the trade marks "tt" and "TUBE-TURN" are applicable only to products of TUBE TURNS, INC.

In special alloy piping systems, alloy TUBE-TURN Welding Lap Joint Stub Ends permit use of lower-cost carbon-steel flanges as shown in cut-away view.

Special alloys lick special piping problems

Write Dept. E-7 for free booklet "Pipe and Fitting Materials" which gives specifications, properties and welding procedures for various materials.

YOU can overcome special problems of corrosion, fluid contamination, pressure, or temperature by selecting pipe and welding fittings of special materials.

Tube Turns, Inc. continually studies the proper application of different materials to piping systems. The complete line of TUBE-TURN Welding Fittings is available in more than forty different alloys. Today's piping engineer can choose from intermediate and high alloy steels containing chromium, nickel, or both; commercially pure nickel, copper, and aluminum; and alloys of these.

Get in touch with your nearby Tube Turns' Distributor. You'll find one in every principal city.

"Be sure you see the double tt"

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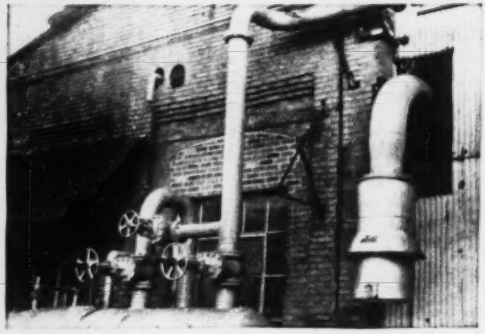
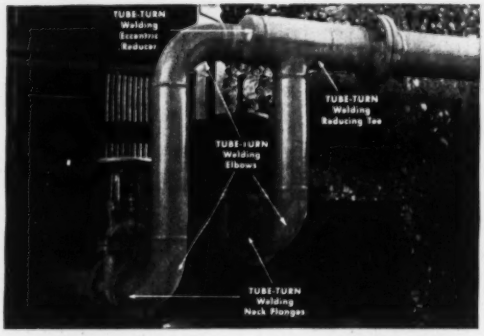
TUBE TURNS OF CANADA LIMITED, CHATHAM, ONTARIO... A wholly owned subsidiary of TUBE TURNS, INC.

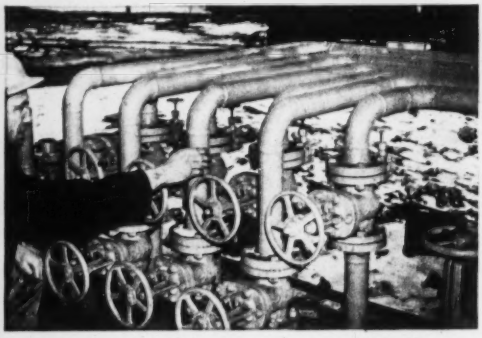
Piping construction simplified by wide range of TUBE-TURN Welding Fittings



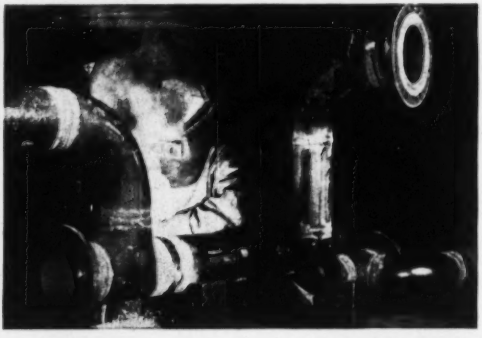
Welding complex process piping calls for a wide variety of fittings and flanges. In this installation, air is drawn into compressor through a 16-inch line, connected to an outdoor filter through a TUBE-TURN Welding Reducer. Air at 100 lbs. is piped to the compressor tank through an 8-inch welded line.



Manifold serves air lines to various shops. Matching the two 8-inch lines to the 12-inch line here was no problem. Use of a TUBE-TURN Reducing Outlet Tee and a TUBE-TURN Eccentric Reducer made the construction job easy. The main line can be opened easily at the TUBE-TURN Welding Flanges.



Small lines tap off fire foam chemical manifold, lead to storage areas and other critical locations. Leakage or weak joints here could be disastrous. Welded piping with strong TUBE-TURN Welding Fittings makes this fire protection reliable.



In fabricating, welders appreciate the true circularity of TUBE-TURN Welding Fittings. To fill an immediate need, a welding elbow is often cut to make an odd-angle welding fitting. Unique forging process assures that TUBE-TURN Welding Elbows can be cut at any angle and still match the pipe for proper welds.

TUBE TURNS, INC., Dept. E-7
224 East Broadway • Louisville 1, Kentucky

Your Name _____
Position _____
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"tt" and "TUBE-TURN" Reg. U.S. Pat. Off.

TUBE TURNS, INC.

LOUISVILLE 1, KENTUCKY

Men and Jobs . . .

PROMOTED—Lt. Col. Thomas R. Lipscomb has been elevated from assistant division engineer, North Pacific division, Corps of Engineers, to district engineer of the Portland district, succeeding Col. Donald S. Burns, recently named South Pacific division engineer with headquarters at San Francisco. Colonel Lipscomb, West Point '34, was instructor at the Engineer School at Fort Belvoir during the early part of World War II. Later he went overseas as commander of the 113th Engineer Group, in England and Germany. After the war he was assigned to construction work in Arctic regions and following that spent two years in Turkey, where he was engineer for the American mission in organizing and re-equipping the Turkish army and air force engineers.

Retirements

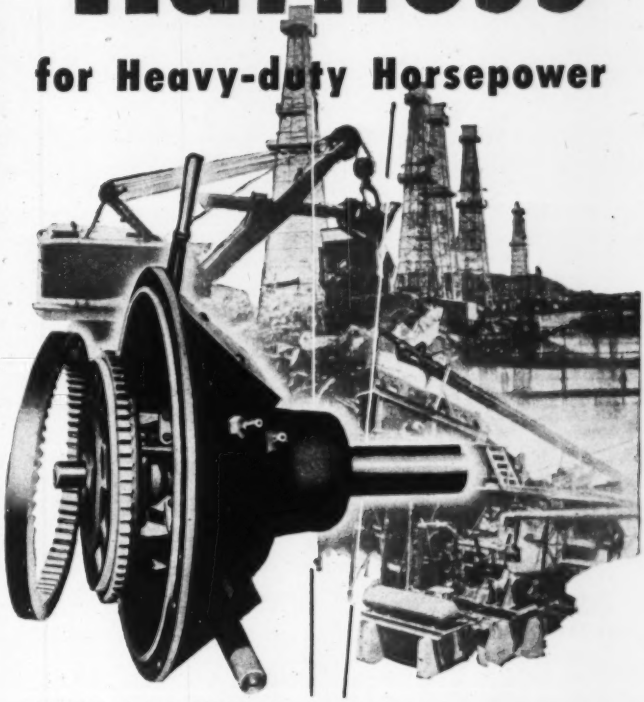
J. Gardner Menut, former utilities executive, has retired as valuation engineer, Army Chief of Engineers with commendation for significant services to the Army and Government in the procurement of electric power and other utilities for Army installations throughout the country

WATCHING WATER WORK is only one of the duties Harry Riegel has as superintendent of utilities at the Fontana plant of the Kaiser Steel Co. But it's an important one because the Fontana plant makes the same water do more work than is done in any other steel mill.

(Continued on page 68)

Harness

for Heavy-duty Horsepower



Twin Disc Friction Power Take-Off, able to handle the entire horsepower range up to and including 350 hp per 100 rpm of the prime mover, is conservatively rated for longest wear-life. Known everywhere for its single-point adjustment.

When you hear the full-throated throb of heavy-duty engines, chances are you'll find their power *applied* and *put* to work through a positive-action Twin Disc Power Take-Off (Friction or Hydraulic) or Torque Converter.

For Twin Disc, the world's largest exclusive manufacturer of industrial clutches, offers the most complete line of standard units, both friction and hydraulic, for the widest range of prime movers.

They engage so smoothly, pick up the load so smoothly, that operators in *many* industries swear by them as exactly the RIGHT *harness for heavy-duty horsepower.*

You'll find the Twin Disc name, too, on clutches to apply fractional horsepower . . . in fact, on *any* power-application problem, it will pay you to obtain the recommendations of Twin Disc Engineers.

TWIN DISC
CLUTCHES AND HYDRAULIC DRIVES

TWIN DISC CLUTCH COMPANY, Racine, Wisconsin • HYDRAULIC DIVISION, Rockford, Illinois

BRANCHES: CLEVELAND • DALLAS • DETROIT • LOS ANGELES • NEWARK • NEW ORLEANS • SEATTLE • TULSA

. . . And this bridge will open. But upon your first call, The Earle Gear and Machine Company will be ready to serve you with all of their experience, skill and facilities. Famous for efficient and unfailing bridge operating machinery, Earle Gear can also provide—promptly and accurately—almost any size and type of gear. Earle engineers are always available and pleased to assist you. In many cases, our accumulated knowledge and experience can materially *lower* the costs . . . or *increase* the efficiency of your machines. Write for information, catalogs or service. THE EARLE GEAR & MACHINE COMPANY, 4717 Stenton Avenue, Philadelphia 44, Pa.

It's good business to do business with EARLE

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Write for Rails & Track Accessories Catalog. ER-6

MEN AND JOBS . . .

PLANNING SERVICE—Seward H. Mott, authority on city planning, shopping centers, and residential and industrial site development, has established a planning organization in Washington, D. C.—the Seward H. Mott Associates. The group will provide technical guidance for developers, city planning commissions, builders and industries. Mr. Mott is now planning the model town to be built near Trenton, N. J., for the new U. S. Steel Corporation plant on the Delaware River.

and overseas. Menut plans to go fishing in Florida.

W. T. Perkins, highway engineer with the Bureau of Public Roads, retired June 29. During World War I he served with the Army Engineers in France on railroad work, and since 1920 has been with BPR. He is a specialist in maintenance work.

Raymond B. Traver, superintendent Onondaga County (NY) Highway Department, has retired after nearly 40 years of service there. For 29 years he headed the organization during which time he became known nationally as a leading road construction and maintenance expert.

Resignations

R. H. Andrew as resident bridge engineer, Department of Public Works, Idaho, to become construction engineer, Corps of Engineers at Fairbanks, Ala.

George F. Burch has resigned as engineer of bridge and traffic structures, Illinois Division of Highways. Burch has been 42 years in service with the state, is a member of the American Society of Civil Engineers. **L. E. Philbrook,** Burch's assistant has been named acting engineer in his stead.

Clarence H. Elliott has resigned as city manager of Jackson, Mich., to become city manager at Kalamazoo effective Aug. 1. Elliott is a past president of the Michigan City Managers Association.

When you specify

REINFORCING BARS that meet ASTM A305

Your reinforcing bar fabricator now stocks bars that meet ASTM Specification A305-50T. These bars have higher, more closely spaced lugs than older bars. They provide a greater bond between steel and concrete, reducing the size of tension cracks, and practically eliminating the need for hook anchorage.

The new ACI Building Code, just ratified, permits greatly increased bond stresses and the elimination of hook anchorage, when A305 bars are used. To you, this means lower steel costs and lower placement costs. On your next job, specify A305 bars. Use the new number designations to indicate bar size. A new bar chart, covering these designations, will be sent to you on request.

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FORT WORTH DIVERSIFIES INDUSTRY; MAKES

DEEP IN THE HEART OF TEXAS, Fort Worth has been justly famed as "Cowtown" since the days of the old Chisholm Trail. While still the leading meat packer and grain processor of the South, Fort Worth also has become much more than that.

Located in the leading mineral and oil producing state, the city has a population of 277,047 with *over 600* manufacturers of a great range of products. An especially important product is the 10-engined B-36, the Air Force "Big Stick."

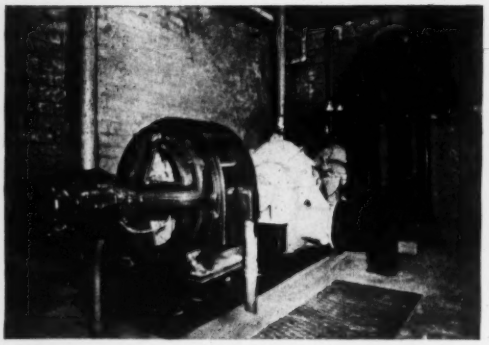
Allis-Chalmers pumps and motors play a large part in the vital transport of Fort Worth's water. Of the Booster stations' total capacity of 85½ million gallons a day, A-C equipment handles 65½ M.G.D.!

Fort Worth knows the importance of an adequate water supply to an even bigger future and is now engaged in a waterworks expansion program. When completed, four reservoirs will provide a storage capacity of 620,660 acre feet . . . enough for the personal and industrial needs of a million people!

If *you* are planning on expansion or modernization, do as Fort Worth and other leading cities are doing — take advantage of Allis-Chalmers knowledge and facilities for handling municipal pumping problems. Call your nearest A-C sales office or write to Allis-Chalmers, Milwaukee 1, Wisconsin for Bulletin 52B6059G.

A-3456

Relies on Allis-Chalmers Equipment for Water



MAIN PUMPING PLANT is rated at 95 M.G.D. capacity. The base load is carried by three 15 M.G.D. motor-driven centrifugal pumps. Seen here are two 24 x 18 in. pumps operating in series against 270 ft head and driven by 900 hp synchronous motor — all Allis-Chalmers!

EAST SIDE STATION has capacity of 22 M.G.D. — exclusively in Allis-Chalmers pumps! The three pumps seen at center supply 3475 gpm against 90 ft head, driven at 1760 rpm by 100 hp induction motors — all Allis-Chalmers. Gas engine in rear drives an A-C 4865 gpm pump.

EXTERIOR VIEW of Main pumping plant near downtown Fort Worth. The waterworks pumped well over 10 *billion* gallons in 1950 with a peak day of 53 million gallons more than *double* that of 1940's peak day. The maximum recorded hourly pumping rate was 79.2 M.G.D.

NORTH SIDE STATION, like East Side (above) and West Side (not shown) uses Allis-Chalmers pumps exclusively. Pumps and 100 hp induction motor drives — both Allis-Chalmers — seen above furnish 3 M.G.D. each at 125 ft head. An Allis-Chalmers 4½ M.G.D. pump here is not shown.

to Bombers!

EVERYTHING FROM MEAT PRODUCTS TO B-36's

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Builders of the World's Widest Range of Public Works Equipment

time saving
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• The plumbing drainage items are only a small part of the requirements of any project. Yet there are so many different conditions involved that it might take you days or weeks to find out exactly what is needed. To save valuable time, and to be absolutely certain of your selection of the plumbing drainage products, call Josam.

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46 other types

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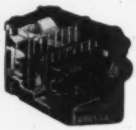

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EDUCATION, RESEARCH

AERIAL VIEW of the new National Bureau of Standards laboratory center at Corona, Calif., where existing buildings are being renovated for new research activities.

Electronic research laboratories established by NBS at Corona, Calif.

The establishment of a new National Bureau of Standards laboratory center at Corona, Calif., to be devoted to various phases of electronic research, development, and engineering, has been announced by Dr. E. U. Condon, director of the bureau. To be known as the Corona Laboratories, National Bureau of Standards, the new research center primarily will be concerned with technical problems of importance to the Department of Defense. The site was transferred to NBS by the Department of the Navy because of the Bureau's urgent need for new facilities. About 22 buildings are being renovated to accommodate NBS research and development activities being transferred there from Washington. Dr. R. D. Huntoon, formerly chief of the NBS Atomic and Radiation Physics, has been named associate director to head the new laboratories, which are expected to be in essentially full scale operation by September.

The site has the advantage of proximity to other important research centers, especially the Navy installations at Invokern and Pt. Mugu and the aircraft industries in the Los Angeles area. Eighteen months to two years construction time was saved because existing buildings at Corona were easily adaptable to NBS research.

In the near future the most important activity at the Corona laboratories will be the development of guided missiles. Every phase of missile development will be covered from theoretical and applied research to construction of experimental parts and units. An analog computer is being set up in the laboratories to be used in flight simulation problems where trajectories of guided missiles must be computed mathematically. The computer, occupying about 1,000 sq ft of floor space, can solve problems in minutes that would take trained mathematicians weeks to solve.

(*Continued on page 75*)

ASSOCIATE DIRECTOR — Robert D. Huntoon has been made associate director to be in charge of the Corona Laboratories. He was formerly chief of the NBS Atomic and Radiation Physics Division. He received his B.A. degree at Iowa State Teachers College in 1932. As a graduate assistant in the physics department of the state University of Iowa he specialized in nuclear physics (Ph. D., 1938). He joined NBS in 1941.

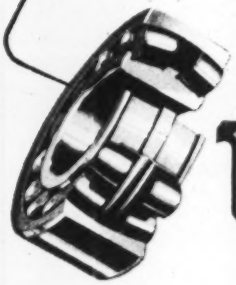
THIS STATEMENT BY THE CHICAGO PNEUMATIC TOOL COMPANY SPEAKS FOR ITSELF

"The Class O-CE Chicago Pneumatic Horizontal Duplex Motor-Driven Compressor is the first to have anti-friction roller bearings throughout. This big advancement in compressor design utilizes SKF Spherical Roller Main and Crankpin Bearings . . . this innovation in side-crank compressor design is made possible by SKF's recent development of the Oil Injection Method of bearing installation and removal.

"With anti-friction bearings many advantages are evident. Reduced maintenance time and costs, one-piece connecting rods and crank discs, a flood lubrication system and no possibility of improper bearing adjustments are among these."*

Once again SKF, by helping put the right bearing in the right place, has contributed to the engineering of more efficient equipment designed to give more dependable and economical service.

7212



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integrity
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* For detailed information on Chicago Pneumatic Tool Company Compressors and other equipment write Chicago Pneumatic Tool Company, 6 E. 44th Street, New York 17, N. Y.

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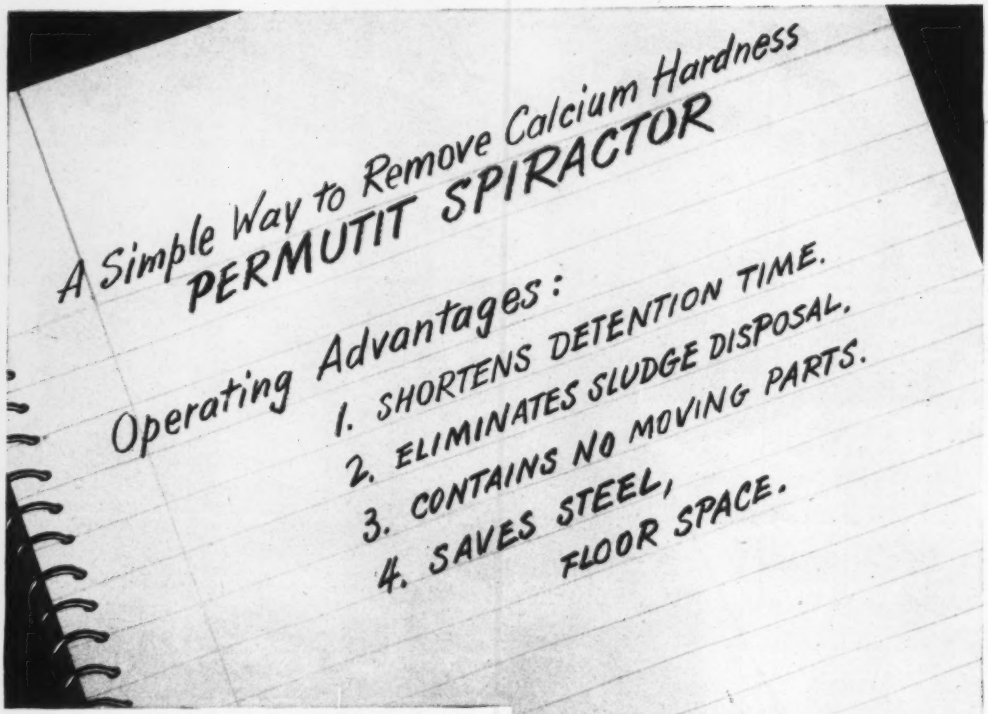
SKF INDUSTRIES, INC., PHILADELPHIA 32, PA.
—*manufacturers of* SKF *and* HESS-BRIGHT *bearings.*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PERMUTIT SPIRACTOR
Operating Advantages:
1. SHORTENS DETENTION TIME.
2. ELIMINATES SLUDGE DISPOSAL.
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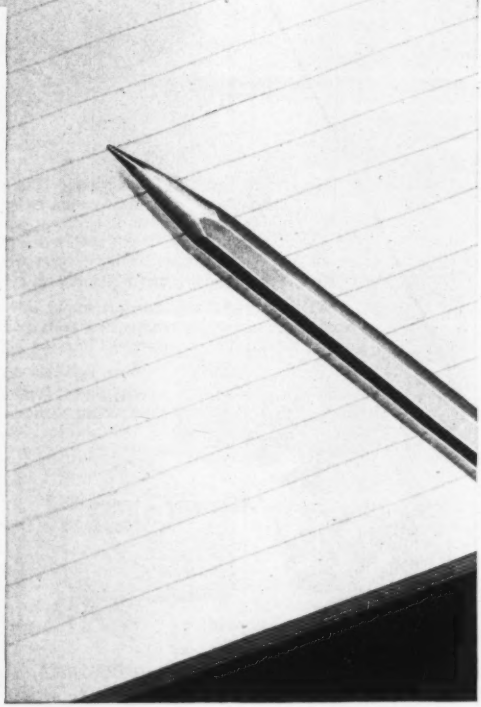
The Permutit Spiractor gives you maximum output of calcium-free water, in minimum time and space.

Accelerated precipitation is possible through intimate contact with solid catalyst granules.

Water swirls upward through the catalyst bed, depositing calcium in layers around the granules. This precipitated hardness is as easy to dispose of as moist sand. The output is soft, stable water.

Write for further information without obligation, to The Permutit Company, Dept. ENR-7,330 West 42nd Street, New York 18, N. Y., or to Permutit Company of Canada, Ltd., 6975 Jeanne Mance Street, Montreal.



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WATER CONDITIONING HEADQUARTERS FOR OVER 38 YEARS

EDUCATION, RESEARCH

Some of the existing buildings are now being remodeled to house electronic laboratories, the large computer, machine shops, a wind tunnel, cells for testing jet-engines, altitude chambers, a missile assembly section, and a technical library.

Over two hundred members of the Missile Development Division of the NBS will move their families to Corona during the next few months. Building materials and credit restrictions have been eased to permit family housing construction.

Brief News of Education and Research

• **Surveying field practice**—Fifty senior civil engineering students at Illinois Institute of Technology will rough it for eight weeks this summer at the institute's Camp Armour on Trout Lake in northern Wisconsin. It is for field practice in surveying.

• **Housing fellowship**—James W. Hanson has won the 1951-52 Bemis fellowship at M.I.T. It will enable him to undertake for his doctorate thesis a study on "Some Economic Aspects of the Influence of the F.H.A. on the Greater Boston Home Mortgage Market."

• **Teaching ability**—Nearly 100 teachers of engineering from ten colleges and universities in the north Midwest gathered at the University of Wisconsin recently to discuss teaching ability and leadership. The general theme was "Self-development of Teaching Ability and Classroom Leadership."

• **Sand and gravel**—The University of Maryland offers two fellowships sponsored by the National Sand and Gravel Association. Stipend is $750 a year. Tuition and other fees are paid and textbooks furnished. The fellow's time will be divided about equally between study of approved courses and research on problems related to the sand and gravel industry.

• **Scholarships**—Dean D. V. Terrell of the University of Kentucky college of engineering has announced 18 scholarship awards valued at $500 each for engineering study during 1951-52.

• **Acoustical research**—Acoustical Materials Association has research projects under way at three research centers to determine the uses, proper testing and properties of acoustical materials.

(Continued on page 76)

NOW... "PUSH-BUTTON" UNLOADING
PRICED LOW ENOUGH FOR ALL!

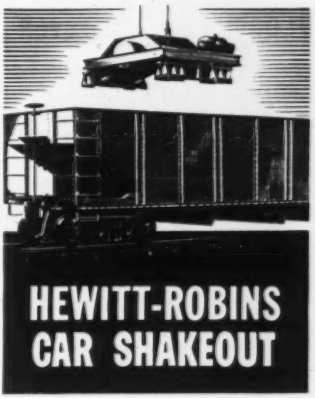
Fast, efficient car unloading can now be yours *at a cost so low you can no longer afford makeshift methods!*

Hewitt-Robins, originators of the Car Shakeout which has unloaded over 400 million tons of material from hopper bottom cars, makes this possible with the *all new* Hewitt-Robins GS Shakeout. This powerful, rugged shakeout—ideal for the smaller-size plant—is designed to unload *up to 15 cars a day*, yet is so economical you can afford to use it for *only two or three cars a day.*

Built-in controlled vibratory action makes the Hewitt-Robins GS Shakeout completely effective and enables the use of smaller, lighter, less expensive hoist and supporting structures—another economy feature for the smaller plant.

And remember, the Hewitt-Robins GS Shakeout gives you all the *plus* advantages introduced by the original Hewitt-Robins HD Car Shakeout: (1) you save time, (2) you save labor, (3) you save money, (4) you reduce demurrage charges, and (5) you eliminate danger to workers.

Learn more about this better, *proven* way to unload hopper cars! Write Robins Conveyors Division, Hewitt-Robins Incorporated, Passaic, N. J.



HEWITT-ROBINS CAR SHAKEOUT

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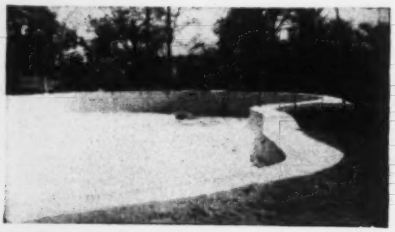
CEMENT GUN COMPANY MAKES POOL "BETTER THAN EVER" WITH GUNITE

Top photograph shows marked disintegration and almost complete failure of a large Municipal Swimming Pool located in a Virginia city.

This picture was taken after Cement Gun Company crews had begun restoration with "Gunite". Reinforcing mesh is in place on the floor and chipping and scaling operations are taking place on the sidewalks.



Lower photograph shows the complete "Gunite" job before water was put back in the pool. This job is typical of what Cement Gun Company can do with disintegrated concrete and masonry using "Gunite".

Scores of similar "Gunite" jobs we have performed are illustrated and described in Bulletin (A)2400. Write today, on your letterhead, for a free copy.

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GENERAL OFFICES—ALLENTOWN, PENNA. U.S.A.
MANUFACTURERS OF THE CEMENT GUN

TILLEY
FLOODLIGHT PROJECTOR
Burns 40 hours on 6 pints of Kerosene

This Model F. L. 6 Floodlight is shown complete with short stand—Weighs 27 lbs. Overall height 26 inches. Also available on 5 to 8 ft. tripod with turntable top—$85.

$65.00 F. O. B. CHICAGO

- A self-contained unit with no cables—entirely independent of batteries, generators, and the like, which makes it more mobile. Wind and rain proof.
- The TILLEY Floodlight Projector gives a white light of 5000 reflected candle power. It is just the thing for night construction work and for emergencies when power is not available. *For complete details we suggest you write.*

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Education Research . . .

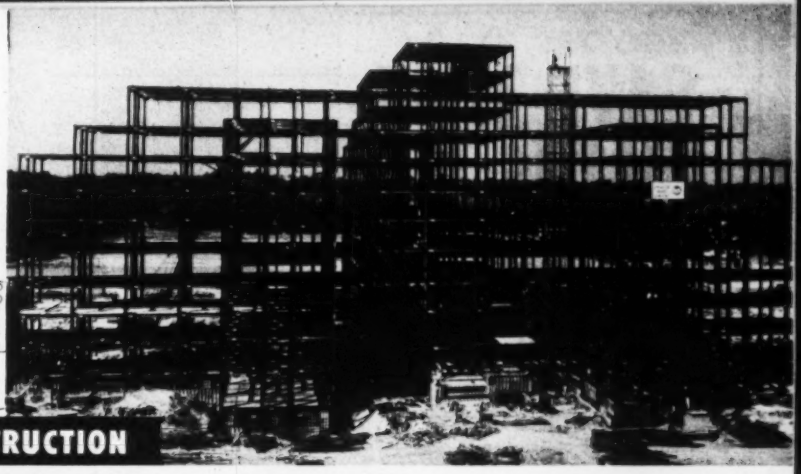
ALFRED T. GLASSETT—Elected president of the Alumni Association of Massachusetts Institute of Technology is Alfred T. Glassett, 1920, president, treasurer and director of the W. J. Barney Corp. of New York, builders.

• **Toward better teaching**—Engineering professors and instructors at the State University of Iowa have been spending time lately brushing up on their teaching theories. The results, the professors admit, have been surprising. Originally planned as a refresher course in the fundamentals of teaching, a program was designed for younger staff members of the university's college of engineering. It was part of a national effort sponsored by the American Society for Engineering Education and consisted of weekly meetings and panels.

• **Another 5-year program**—Columbia University is the latest institution to enter into an agreement with liberal arts colleges to offer students a combined 5-year program leading to both a B.A. and a B.S. degree. The institutions so far in the plan with Columbia are Allegheny, Baldwin-Wallace, Franklin and Marshall, Hobart and William Smith, Hofstra, Juniata, Marietta, Miami, Middlebury, Queens, St. Lawrence, and Washington and Lee.

• **Metal mats for landing fields**—The Corps of Engineers has contracted with the Kansas State College engineering station for a study of metal mats for landing fields. The research is to be done specifically for the Waterways Experiment Station of the Corps of Engineers at Vicksburg, Miss. It will be directed by Gerald Pickett of the applied mechanics department under Prof. Charles Scholer, department head.

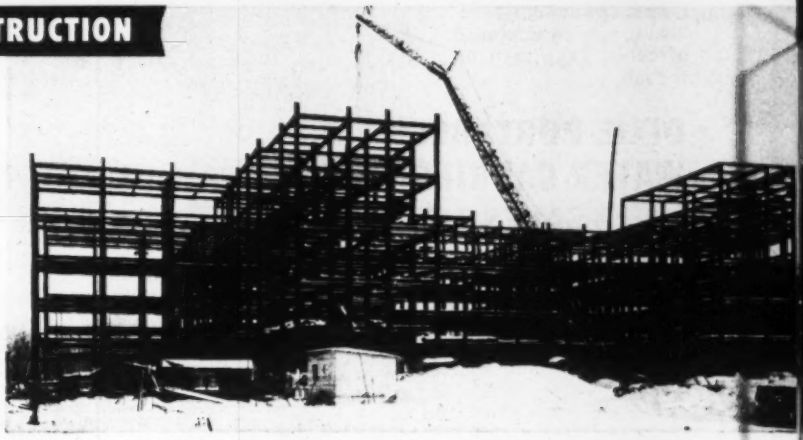
VETERANS ADMINISTRATION HOSPITAL, DENVER, COLORADO. American Bridge Company fabricated and erected the structural steel for main hospital building, 325' x 325', 9 stories high with penthouse; also the boiler house, the chapel, manager's building, apartment building, nurses' quarters and attendants' quarters. Total weight, 2,600 tons. General Contractor, Del E. Webb Construction Co. Plans by Veterans Administration Construction Service.



RIVETED CONSTRUCTION

WELDED CONSTRUCTION

VETERANS ADMINISTRATION HOSPITAL, MINNEAPOLIS, MINNESOTA. Fabricated and erected by American Bridge Company. Project included hospital building No. 43—an 8-story structure, with setback and penthouse, and #43-1, an 11' wide x 78' long, 4-story connecting corridor, and a 61' x 117' x 13' 8" addition to laundry building. Hospital building #43 was of welded construction throughout. Total weight of steel, 2,100 tons. General Contractor, J. D. Hedin Construction Company. Plans by Veterans Administration Construction Service.



Steelwork for both hospitals

FABRICATED AND ERECTED BY

AMERICAN BRIDGE COMPANY

AS SPECIFIED

THE two big hospitals shown above are typical of the many steel buildings fabricated and erected by American Bridge Company. Each is a good example of its particular type of construction.

American Bridge Company plays no favorites when it comes to riveted or welded construction. We have the skilled personnel and equipment to do both types with exacting precision, thoroughness and speed. The all-welded Minneapolis job was erected during the severe Minnesota winter and is evidence of the willingness and ability of American Bridge Company to field-weld structures any time, anywhere!

If you would like to know more about the advantages of American Bridge Company fabricated and erected steel construction, just call our nearest office.

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UNITED STATES STEEL

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WITH

DIXIE CUPS or VORTEX CUPS

Clean, safe Dixie Cups, and cone-shaped Vortex Cups, protect health, help check spread of colds, keep men on the job.

DIXIE PORTABLE WATER CARRIER SAVES TIME

Brings water *to* the men...keeps crews *on* the job. Insulated to keep water cool for hours. Built for years of rugged use. Cover and lining of stainless steel for cleanliness. Uses either flat-bottom Dixie Cups or cone-shaped Vortex Cups.

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DIXIE CUP COMPANY
Easton, Pa.

MEETINGS

W. H. Arthur of Asheville, N. C., has been elected president of the Carolinas Roofing and Sheet Metal Contractors Association. Other officers are J. H. Piper of Greenville, S. C., first vice-president; W. T. Fort of Sumter, S. C., second vice-president; and Beverly M. Rose of Durham, N. C., secretary-treasurer.

Ohio State Drainage Contractors Association has elected H. G. Metzker, Findlay, as president; Marion Inbody, Benton Ridge, vice-president; and John Stackhouse, Norwalk, secretary-treasurer.

Edward Van Wagenen, consulting engineer from Orange Park, is the new president of the Northeast Florida chapter, Florida Society of Professional Engineers. Other officers are John F. Shea, chief structural engineer of Smith and Gillespie, Jacksonville, vice president. E. Ellis Bentley, engineer-manager of Jacksonville municipal airports, secretary-treasurer, and Past President Stanley Warth, transmission and protection engineer, Southern Bell Telephone and Telegraph Co., Jacksonville, director.

Fred F. Chopin of Oakland, Calif., has been elected president of the Associated Home Builders of the Greater East Bay, Calif. He succeeds August H. Rahlves. Scott W. Bonds of El Cerrito has been elected vice-president, and Dean Morrison re-elected secretary-treasurer. John I. Hennessy has been reappointed executive vice-president. Elected to the board of directors are Del Goforth, A. H. Rahlves, Dan Bodily, Al Lockwood, and William Freeborn.

The National Constructors Association, composed of leading building organizations engaged in the construction of chemical plants, steel mills and petroleum refineries, has formed a Northern New Jersey Committee composed of representatives of association members with construction projects in that part of the state. E. L. Knight of Day & Zimmerman, Inc., Philadelphia, was elected chairman. New officers of the Miami Chapter of the Florida Society of Professional Engineers have been elected as follows: President—Jules P. Channing, vice president—Leonard W. Culter, secretary-treasurer—Herbert S. Saffir, chapter director—Dr. Palmer H. Craig.

At the recent annual meeting of the New England Interstate Water Pollution Control Commission at Chicopee, Mass., Morris M. Cohn, Public Health Engineer of Schenectady, N. Y., was elected chairman. During the last year he served as vice-chairman and succeeds Dexter D. Coffin, of Windsor Locks, Conn., as chairman. The new vice-chairman is Philip Shutler, commissioner of the Vermont State Water Conservation Board. Anthony F. Pimental, Chicopee, planning board official was elected treasurer, succeeding Leo Marceau, Springfield. The New England Commission now includes the states of Connecticut,

(*Continued on page 81*)

CALENDAR

N. Y. State County Highway Superintendents Association, New Worden Hotel, Saratoga Springs, N. Y., July 18-20.

Bureau of Reclamation, annual programming conference, Wenatchee, Wash., July 23-27.

National Conference on Prestressed Concrete, Massachusetts Institute of Technology, Cambridge, Mass., Aug. 14-16.

Canadian section, American Sewage and Sanitation Equipment Association, Royal York Hotel, Toronto, Ont., Aug. 20-22.

New England Water Works Association, Hotel Statler, Boston, Mass., Sept. 10-12.

Minnesota section, American Water Works Association, fall meeting, Hotel Nicollet, Minneapolis, Sept. 12-14.

N. Y. section American Water Works Association, fall meeting, Whiteface Inn, Lake Placid, N. Y., Sept. 13-14.

Public Works Congress and Equipment Show, Memorial Bldg., Detroit, Mich. Sept. 16-19.

Pennsylvania Section, American Water Works Association, Bellevue-Stratford Hotel, Philadelphia, Pa., Sept. 19-21.

Kentucky-Tenenssee section, American Water Works Association, fall meeting, Louisville Kentucky Hotel, Louisville, Ky., Sept. 17-19.

Michigan section, American Water Works Association, fall meeting, Whitcomb Hotel, St. Joseph, Sept. 19-21.

Rocky Mountain section, American Water Works Association, fall meeting, Hotel Cosmopolitan, Denver, Colo., Sept. 24-25.

9th International Road Congress, Permanent International Association of Road Congresses, Lisbon, Portugal, Sept. 24-29.

Alabama-Mississippi section, American Water Works Association, Buena Vista Hotel, Biloxi, Miss., Sept. 24-26.

Wisconsin section, American Water Works Association, fall meeting, Pfister Hotel, Milwaukee, Sept. 25-27.

Ohio section, American Water Works Association, fall meeting, Commodore Perry Hotel, Toledo, Ohio, Sept. 27-28.

Missouri section, American Water Works Association, Hotel Robidoux, St. Joseph, Mo., Sept. 30-Oct. 2.

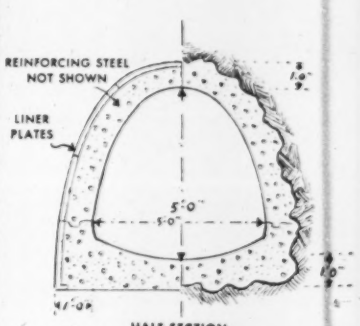
CASE HISTORY OF A SUCCESSFUL TUNNEL JOB

FROM THE EIMCO FILE T289

PAWTUCKET SEWAGE TUNNEL

Specifications

Tunnel length 2400'—Diameter approximately 6' rough bore. Advance approximately 2—5' rounds per heading per shift in rock sections. Liner plates used in soft sand sections. Working 5 headings. Loaders — Eimco Model 12B low head room modified for 5'6" headroom clearance.



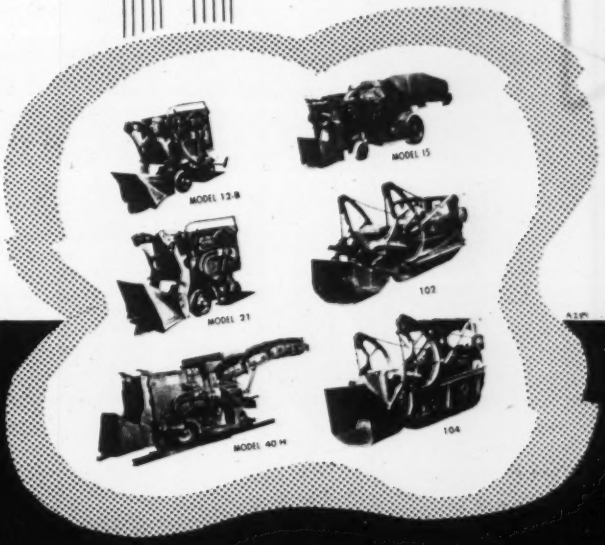
HALF SECTION

IN EARTH OR LOOSE ROCK — IN SOLID ROCK

Modern contractors insist on dependable equipment to help them make a profit on highly competitive jobs. Big or small rock loading jobs are equally important in this respect. Each job is different in many respects and in order to work it successfully it must be individually handled.

All this is known to the Eimco engineer who has lived with rock handling jobs and given many contractors the information of his years of experience. Many other little things that add up to success are also suggesed with his able assistance.

For instance: an efficient coupler will in many cases increase loading speed by as much as 25% per car. Eimco always designs a coupler for the customer's car at no extra charge—just one of the little services that improve the speed, efficiency and dependability of Eimco Rocker-Shovels.



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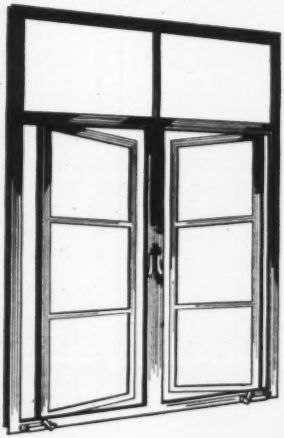
TRUSCON... a name you can build on



for better modern styling...

The sharply-defined motifs so essential in modern architecture are greatly enhanced by the graceful design of Truscon Residential Steel Casements, as shown in striking photograph of the new Brockton Apartments, Chicago.

Credit: Architect, Robert S. DeGolyer Contractor, A. L. Jackson Company

Truscon Residential Casements are equipped with Roto Operators which open or close the ventilators without the necessity of moving the screen. The ventilators are held securely in any open position. The concealed-latch locking handles provide positive cam action, drawing the ventilators tightly closed and weathertight.

See SWEET'S for complete details on the entire line of Truscon Steel Windows for every purpose; and write for detailed literature on all other Truscon Steel Building Products.

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PRODUCTS

TRUSCON STEEL COMPANY
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Meetings . . .

Massachusetts, New York and Rhode Island and announcement was made at the meeting that Vermont has passed the necessary legislation to join the compact and that it was expected that the New Hampshire legislature would take similar action during the present legislative session.

The American Institute of Architects, sponsored by the Building Research Advisory Board of the National Research Council, is planning a conference in October to discuss building problems connected with the utilization of nuclear energy in laboratories and hospitals. The program will be devoted entirely to better building construction for peacetime uses of nuclear energy. Subjects to be discussed include shielding from radiation; waste disposal; air supply and ventilation for hoods; building materials and finishes not easily contaminated; and architectural designs for tracer laboratories. The meetings will be held at the National Research Council. Tentative dates are October 22 and 23. Anyone interested in attending should contact Wm. H. Scheick, executive director, Building Research Advisory Board, National Research Council, 2101 Constitution Ave. Washington, D. C.

Ohio Ready Mixed Concrete Assn. has elected Herbert Rusk, Mansfield, as president, and Claud L. Clark, Columbus, was re-elected secretary-treasurer.

The Erie County Chapter, New York State Society of Professional Engineers, has urged the City Council of Buffalo to create an appeals board for settlement of disputes stemming from interpretation of city building ordinances.

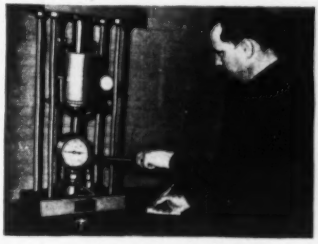
Brief . . .

• **One-way troubles**—A program for one-way streets in Chicago's Loop has opened a feud between city and park officials. The city council has voted the routing of traffic eastbound on Washington St. and westbound on Randolph St. James Gately, president of the Park District, has announced that he will not go along with this plan. He favors making Washington St. a westbound street to prevent tieup of Michigan Ave. Washington St. as a boulevard just west of the Loop, is controlled by the Park District. The remaining portion, which bisects the Loop, is controlled by the city.

use the MAGIC of
GAUGE-EQUIPPED
Blackhawk Jacks

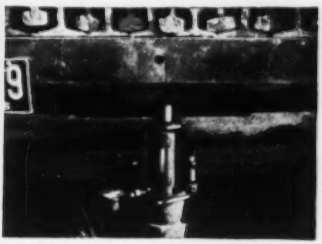
Pre-stressing Concrete with "Measured" Hydraulic Power

Above — a Blackhawk 50-ton "Porto-Power" Hydraulic Jack — *equipped with a gauge* which registers pressure exerted in pre-stressing cellular roadway slabs for a bridge. On many jobs, such low-cost Blackhawk equipment takes the place of large, costly, improvised arrangements.



Laboratory Testing

The heart of this testing device is a Blackhawk Gauge-Equipped Hydraulic Jack. It's being used for a penetration test on road-building material. Gauge registers "lbs. total load" exerted.



Field Testing

Here's a popular set-up for testing the weight-bearing characteristics of soil prior to construction work. This Blackhawk Gauge-Equipped Jack is pushing against a load of ballast.

Blackhawk Gauge-Equipped Jacks (up to 100-ton capacity) do these and many other jobs

- Test fracture points of materials
- Check weights of cumbersome members
- Press plastics etc.
- Test load-bearing qualities of soil
- Press parts together at predetermined pressures
- Draw cables to specified tension
- Sink piling to predetermined loads

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Gentlemen:
Without obligation, send catalog and prices on GAUGE-EQUIPPED Hydraulic Jacks.

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That's right! Whether you use a popular Airco gas welding rod, flux, or brazing alloy for production or maintenance operations . . . you're certain of top-notch work—ask any one of the thousands of welders who swear by these Airco oxyacetylene welding supplies.

This well-recognized reputation for top performance didn't just happen—more than thirty years' experience and development have gone into the manufacture of these outstanding gas welding supplies . . . know-how that produces high quality, reasonably-priced items that guarantee a job done faster, done better, done easier and done at less net cost.

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For further information about Airco's oxyacetylene welding supplies which includes a complete line of rods, fluxes and brazing alloys, write your nearest Airco Office or Authorized Dealer for a free copy of Catalog 12.

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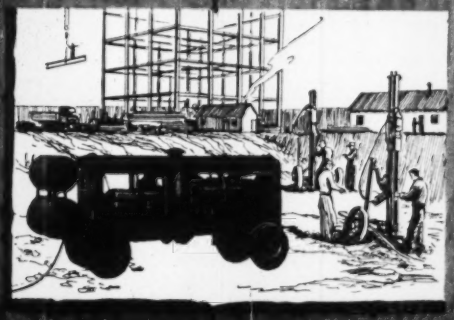
OBITUARY

Dr. Dugald C. Jackson, 86, died July 1 at his home in Cambridge, Mass. Dr. Jackson was head of the department of electrical engineering at Massachusetts Institute of Technology for 28 years prior to his retirement in 1935. During this period he wrote three textbooks, and held the Lamme and Edison Medals, and was a Chevalier of the Legion of Honor, France. Prior to his work at MIT he had headed the department of electrical engineering at University of Wisconsin for a period of 16 years. Dr. Jackson also helped form the consulting firm of Jackson & Moreland with the late Dr. Edward L. Moreland of M.I.T. The firm took part in many hydro-electric and railroad electrification projects. Dr. Jackson served as a lieutenant-colonel of engineers, U. S. Army, World War I and represented the United States at the World Engineering Congress in Tokyo, 1929. He was also past president of the American Institute of Electrical Engineers. A graduate of Pennsylvania State College, he first taught at Cornell.

Oscar George Boden, 66, died in Tracy, Calif., on June 27. Mr. Boden was a U. S. Bureau of Reclamation engineer for 40 years during which time it is estimated that his projects totaled more than 15,000 miles of canals and ditches. Since 1935 he has been associated with the Central Valley Project working on the Contra Costa Canal, the Delta Mendota Canal, the Delta Cross Channel, the Tracy Pumping Plant, and the alignment of the Madera Canal. Earlier he participated on projects in Oregon, Washington, Nebraska, and Wyoming. Mr. Boden was a graduate of Iowa State College.

Robert T. Brooks, retired executive vice-president of the American Institute of Steel Construction, died July 2 in Minneapolis. Prior to his retirement in 1946, he had been connected with the steel fabricating and construction industry for 40 years. He began his career with the John J. Radley Co. of New York City, and rose to become its vice president in charge of sales. In 1914 he became vice-president and general manager of the George A. Just Company, Long Island City. In that capacity he was elected a director of AISC in 1931. He became vice-president in 1935 to head up the expanding services of the institute, where he remained until his retirement eleven years later. Mr. Brooks was a graduate of Stevens Institute of Technology.

(Continued on page 85)



The Sidewalk Superintendent Sees Something New

It's the new Model 600 Schramm Air Compressor . . . new, yet already established as a rugged, versatile Air Compressor providing savings up to 50%. Exclusive features make this saving possible. For the many interesting construction details of the Schramm 600, write today for Bulletin 5025.

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NO dollar-draining MAINTENANCE COSTS

. . . for this room!

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MOSAIC CARLYLE QUARRY TILE
UPKEEP COSTS WILL BE DOWN FOR YEARS!

Long-wearing, low-maintenance Mosaic Carlyle Quarry Tile floor and Mosaic Tile wall—Missouri Pacific Hospital Kitchen, St. Louis, Missouri. Specifications: *Wall*—Mosaic Tile, color L-216; *Floor*—Mosaic Carlyle Quarry Tile, Oriental.

With Mosaic Carlyle Quarry Tile floors and Mosaic Glazed Tile walls, there's never a need for expensive redecoration and repair! There are no high maintenance costs! Mosaic Tile serves year after year—requiring only normal cleaning to keep its original beauty.

Modern thin-setting bed application methods make today's installation costs surprisingly low. That's why you see Mosaic Tile on so many walls and ceilings of rooms like this, in public and private buildings everywhere.

Whether you're spending other people's money or your own . . . building or remodeling—see long-wearing, money-saving Mosaic Tile before you decide.

Talk it over with your architect, builder, tile contractor—or write Dept. 26-4 — The Mosaic Tile Company, Zanesville, Ohio, for information on Carlyle Quarry Tile and the many other types of Mosaic Tile!

A CHECK LIST of Places Where Mosaic Tile Can Save your maintenance dollars!

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Floors
Fountains
Porches
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Snack Bars
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Store Fronts
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Offices, Showrooms and Warehouses across the nation. Over 4000 Tile Contractors to serve you.

OBITUARY . . .

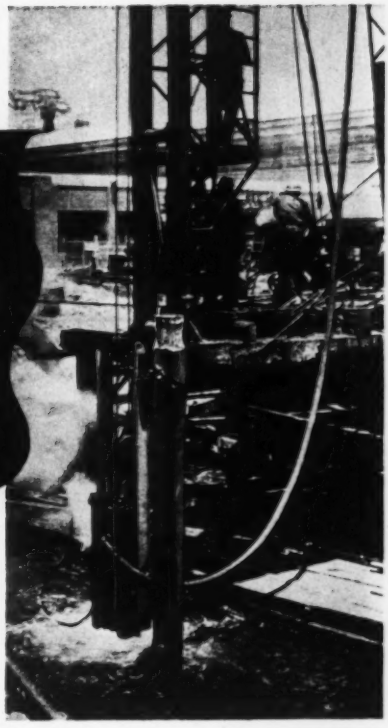
Frederick J. Nebiker, 55, for 18 years connected with the New England Division, Army Engineers, died June 29 in a Cambridge, Mass., hospital. Mr. Nebiker was a graduate of the Federal Technical University of Zurich, Switzerland. He began his career as a draftsman with the Albert Buss, A. G. Bridge Co. of Basle, then became project engineer for water-power plants with O. Bosshardt, Construction engineers of the same city. In 1923 he came to the United States as a designer for the New York City hydraulic division for water-power plants with Electric Bond and Share Co. of that city. In 1924 he attached with the Barron G. Collier Interests, New York City, at Everglades, Florida. His career with the Army Engineers began in 1933.

Comdr. Harold H. Schoen, 46, commanding officer of the Organized Seabees (Construction) Battalion at Freeport, L. I., died July 3 in New York after a four month illness. Schoen was an engineer associate of the firm Eugene Schoen & Sons.

George L. Brown, 63, western civil and construction engineer, died June 29 in Naval Hospital, Philadelphia. He recently helped construct the National Institute of Health at Bethesda, Md. During World War II he was on the Aleutians as a civil engineer with the Corps of Engineers. During World War I, Mr. Brown was chosen for his bravery to be one of the six men to carry the unknown soldier's casket to Arlington National Cemetery, Nov. 11, 1921. He held the Distinguished Service Cross, the Legion of Valour, the French Croix de Guerre with palms and two purple hearts.

Dr. Cheng Fu Wang, 60, a Chinese civil and mining engineer and administrator, died July 2 in Alexandria, Va., where he made his home with his son, Kung-ping Wang, chief of the Far Eastern Section, Foreign Minerals Region, U. S. Bureau of Mines. Dr. Wang was an imperial scholar during the Manchu Dynasty, graduated in 1912 from Columbia University, was awarded a medal of honor for outstanding achievement in the mining field. In Manchuria he helped build the large coal and metals mining industry which was lost to the Japanese in 1931, as well as the mining in the Peiping vicinity. He headed the Chinese Bureau of Mines in 1931-32, was chairman of the board of Yencheng University Engineering School.

PILE DRIVING *under water*



McKiernan-Terry 11-B-3 Double-Acting Pile Hammer driving 85-ft. steel H-beams for the 4000-ft. bridge over Carritos Channel. Terminal Island, Cal. Proctor & Kuhn, sub-contractors to United Concrete Pipe Corp.

1170 STEEL PILES had to be driven under water during the construction of this longest, highest vertical-lift bridge on the Pacific Coast. 390 steel piles, 85 feet long, were hammered full length, without follower, into unstable soil to required elevation. At cut-off the anvil block or base of the hammer was 12 feet below the surface of the water. In addition, 780 shorter piles were driven for the lift-span piers. • McKiernan-Terry Double-Acting Pile Hammers were chosen for the job because (1) they were the first pile hammers developed for underwater driving and (2) they have held an unsurpassed reputation for underwater driving dependability through the years. • 17 sizes of hammers and extractors are available in the complete McKiernan-Terry line. Write for bulletin giving all the facts.

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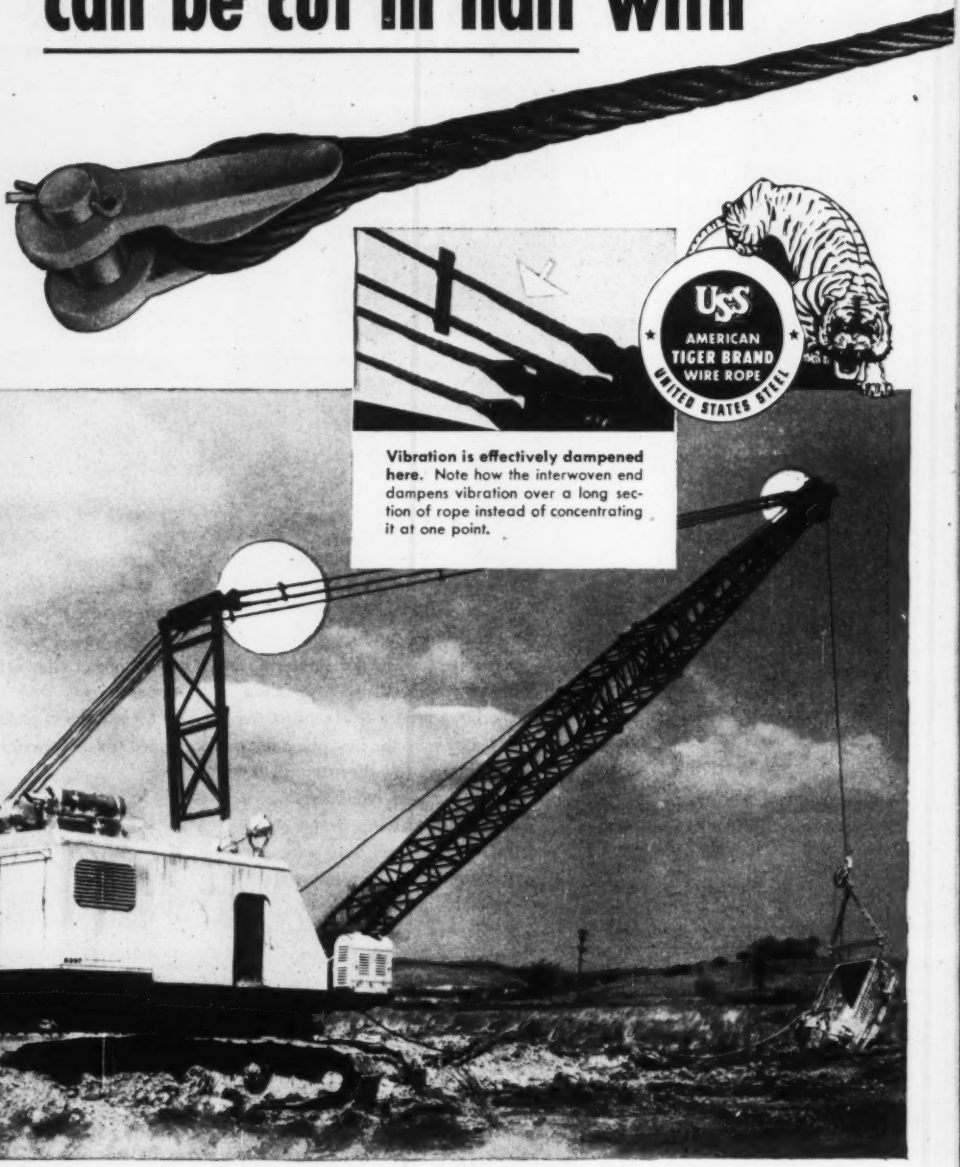
COAL TOWERS

TRANSFER BRIDGES

HONING TO 42" I. D.

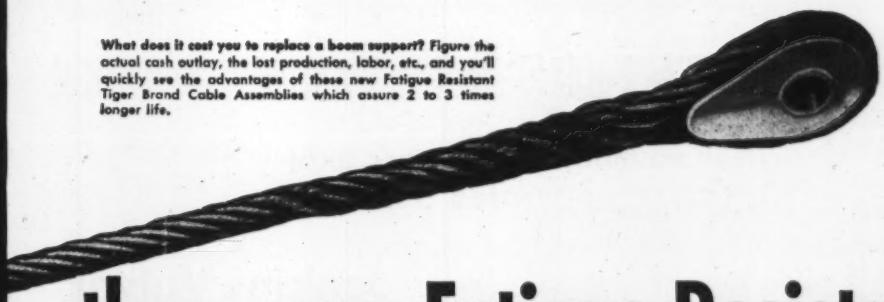
McKIERNAN-TERRY CORPORATION, Manufacturing Engineers, 13 Park Row, New York 38, N. Y.
PLANTS: HARRISON, N. J., DOVER, N. J. MK 501

Your boom support costs can be cut in half with



Vibration is effectively dampened here. Note how the interwoven end dampens vibration over a long section of rope instead of concentrating it at one point.

What does it cost you to replace a boom support? Figure the actual cash outlay, the lost production, labor, etc., and you'll quickly see the advantages of these new Fatigue Resistant Tiger Brand Cable Assemblies which assure 2 to 3 times longer life.



these new Fatigue Resistant TIGER BRAND Cable Assemblies

***An exclusive development of* AMERICAN STEEL & WIRE COMPANY**

Why these boom supports last 2 to 3 times longer. Excessive vibration is the chief cause of boom support failure. In old style boom supports, vibration is concentrated at the *point* where the rope enters the socket. This causes the wires to break from fatigue. In this new assembly, the effects of vibration are dissipated over a long section instead of being concentrated at one point. The result is two to three times longer life for boom supports and much greater safety.

The new Tiger Brand Assembly has a novel design which embodies *interwoven* eye-end and open-end thimbles which makes these pendants easily and quickly interchangeable on standard equipment.

You also save replacement time. If the machine is down for two or three hours while new boom supports are being installed, you lose that much production time. Longer life from our new supports *results* in fewer replacements. This means clear profit if you use the new Tiger Brand Supports.

Order your next boom supports now. The new Fatigue Resistant Boom Supports can be easily and quickly adapted to your present equipment because essential dimensions such as pin diameters, distances between ears, etc. are the same as for standard open and closed sockets. Send the coupon for complete information.

AMERICAN STEEL & WIRE COMPANY,
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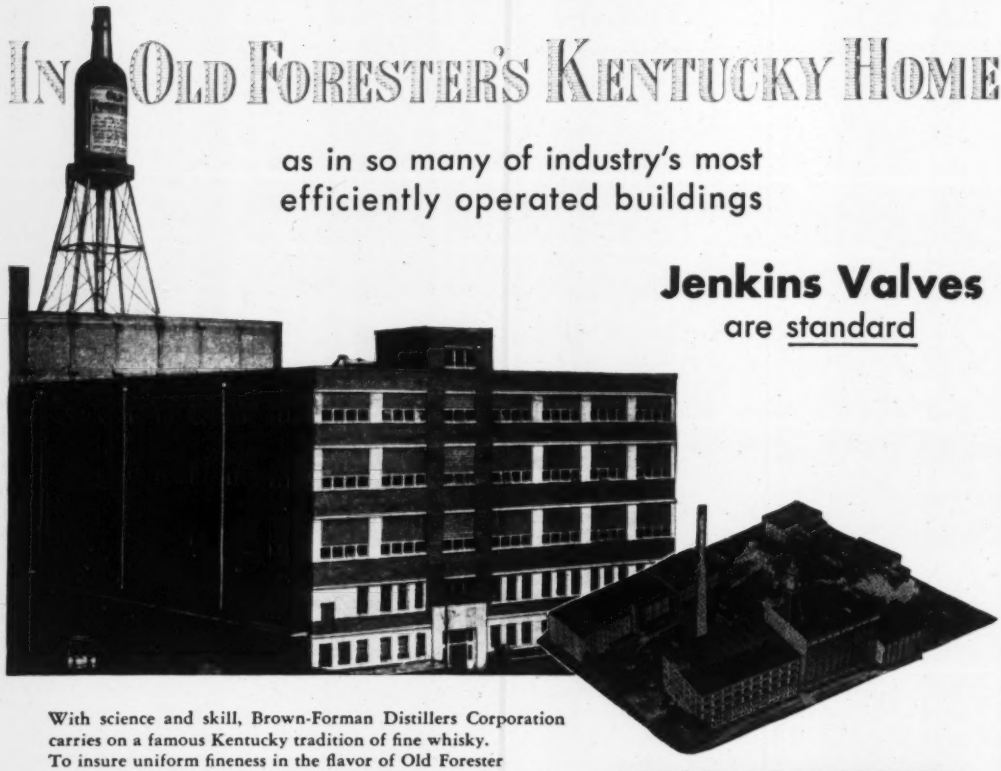
Excellay Preformed

UNITED STATES STEEL

IN OLD FORESTER'S KENTUCKY HOME

as in so many of industry's most efficiently operated buildings

Jenkins Valves
are standard

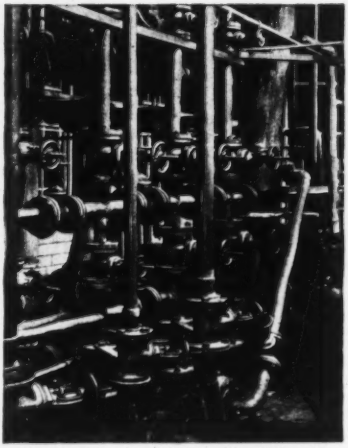


With science and skill, Brown-Forman Distillers Corporation carries on a famous Kentucky tradition of fine whisky. To insure uniform fineness in the flavor of Old Forester and its other whiskies, nothing is left to chance in the Brown-Forman distilling operations at Louisville.

Equipment for control of production is checked with the same meticulous care as grain samples, before approval. It is significant that Jenkins Valves, standard for years in all Brown-Forman distilleries, were again specified when plant facilities were expanded and modernized recently.

Significant, but not unusual. Jenkins Valves have been the choice *consistently* of the men who plan America's outstanding buildings. Future-minded, these men — architects, engineers, contractors — think of all operating equipment in terms of tomorrow's maintenance costs.

Jenkins builds *extra* endurance into valves — proved by low upkeep cost records in every type of service. Yet, despite this extra value, *you pay no more* for Jenkins Valves. For new installations, for all replacements, let the Jenkins Diamond be your guide to lasting valve economy. Jenkins Bros., 100 Park Ave., New York 17; Jenkins Bros., Ltd., Montreal.



Among more than 3500 Jenkins Valves in Brown-Forman's Louisville plant are these which control the flow patterns through quadruple effect evaporators in the By-Products Building

JENKINS VALVES

LOOK FOR THE DIAMOND MARK

SINCE 1864 TRADE JENKINS MARK

SOLD THROUGH LEADING INDUSTRIAL DISTRIBUTORS EVERYWHERE

Jenkins Bros.

Obituary . . .

Charles T. Davis, 87, superintendent of the waterworks in Maywood, Ill., until his retirement in 1943, died June 27.

Joseph I. Lyon, 60, Hagerstown, Md., city engineer from 1936 to 1940, died on June 27.

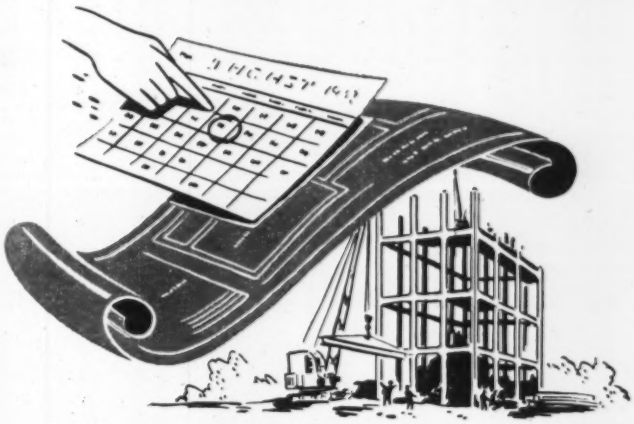
Reese E. McLeod, 73, president of the McLeod & Romberg Stone Co., Inc., of Bladensburg, Md., died June 26 in Wildercroft, Md. Mr. McLeod was in the stone business for 60 years, one of his latest jobs including work for the remodeling of the White House.

W. L. Schildknecht, Sr., 75, retired building contractor, died June 25 in Louisville, Ky. Mr. Schildknecht was a contractor for 58 years until his retirement.

George Treat, Sr., 69, retired New Haven building contractor, died July 7. His firm of Sperry and Treat built the Walter Camp Memorial at the Yale Bowl, the New Haven County Court House, the New Haven Public Library, and aided in putting up many Yale buildings.

William F. Hancock, 33, owner of the Contractors' Equipment Exchange, died June 28, 1951, in Milwaukee. Mr. Hancock was a graduate in civil engineering from the University of Wisconsin in 1940. Immediately after he was associated with Joseph T. Ryerson & Son, Inc., of Chicago, Ill., for two years. From 1942 to 1945, he was a Lieutenant in the Seabees, served at Pearl Harbor, Wake and Midway. After leaving the service, he was employed by the Hunter Tractor and Machinery Co for two years, then with Miller, Bradford & Risberg as a sales engineer prior to going into business for himself in 1949.

William D. Gilson, 64, Production Superintendent of The Robinson Clay Product Company, of Akron, Ohio, died at his home in that city on June 29. Born August 18, 1886, in Middlefield, Ohio, Mr. Gilson attended public schools there and business college in Akron. After a year's tenure with the Erie Railroad Company in Youngstown, Ohio, he joined The Robinson Clay Product Company in 1908 as a shipping clerk. He advanced steadily through the ranks becoming Superintendent of Robinson Factories 4 and 12 at Clearfield, Pa. He was named the company's Production Superintendent in 1943 and served in this capacity until his death.



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to help meet your schedules

When time is spent waiting for the delivery of structural steel, an old adage becomes painfully true. Time is, indeed, money.

An outstanding record of performance on deliveries is one of the major reasons why International Steel has won such confidence from its customers as a supplier of structural steel. Even in a time of shortage, a contract with International Steel is assurance that you will receive every possible cooperation on deliveries to make your work go forward on schedule.

INTERNATIONAL Steel Co.

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STEEL BUILDINGS
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Everything in Fabricated Steel for Construction

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NOW---A COMPLETELY

The New BUCYRUS-ERIE HYDROHOE

- ★ Two separate digging actions
- ★ Eliminates up to 40 percent time lost moving up
- ★ No bails, sheave blocks or drag ropes to interfere with loading
- ★ Digs a level trench — reduces hand trimming, no scallops
- ★ Precision control — every work function fully hydraulic
- ★ Hydraulic ejector assures fast, clean dumping of dipper
- ★ Travels up to 50 mph. on open highway

Here is a completely new idea in dragshovels for trenching and related digging — the Bucyrus-Erie Hydrohoe. Every operating function is fully hydraulic — boom hoist, swing, dipper dig and dump, boom telescope, outrigger set and retract, and positive dirt ejector.

The Hydrohoe is the only dragshovel with *two* separate and distinct digging actions. The first is through a hydraulic ram located between boom and dipper handle. The second digging action comes from telescoping the boom. This exclusive telescope feature eliminates moving dragshovel back and forth when digging out boulders and excavating across pipe and cable . . . permits digging a level, scallop-free trench, greatly reducing hand trimming.

Control is so precise, Hydrohoe can operate efficiently and safely around buried pipe and conduit. Dipper can be moved a fraction of an inch if necessary.

Available with interchangeable 18-in. and 12-in. wide self-discharging dippers, the Hydrohoe is adaptable to a wide variety of digging and trenching jobs.

Write today for full details. We'll be happy to arrange a demonstration.

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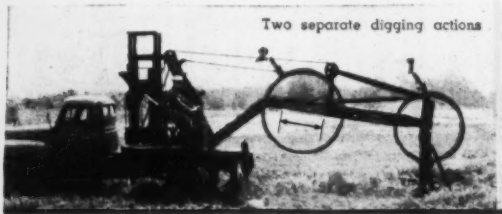
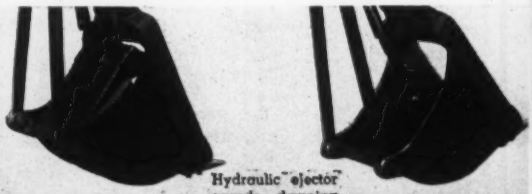
BUCYRUS-ERIE HYDROCRANE DIVISION
SOUTH MILWAUKEE, WISCONSIN


Two separate digging actions


Hydraulic ejector speeds dumping

HYDROHOE - - - A NEW MONEY MAKING

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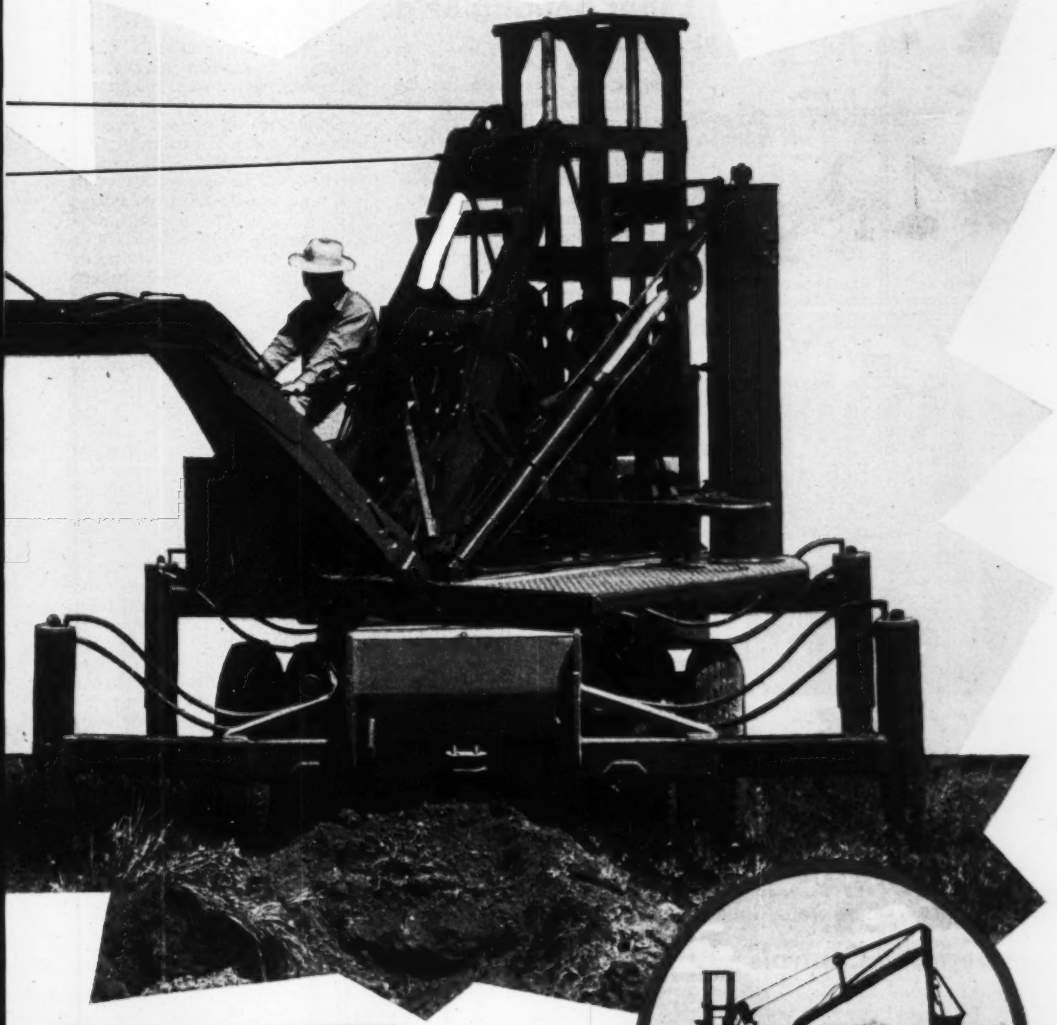

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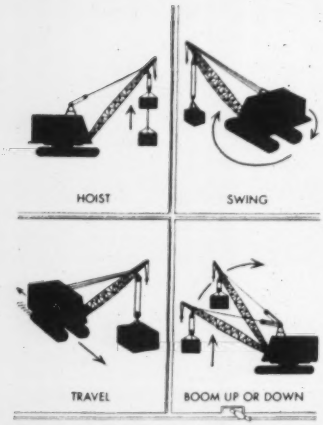

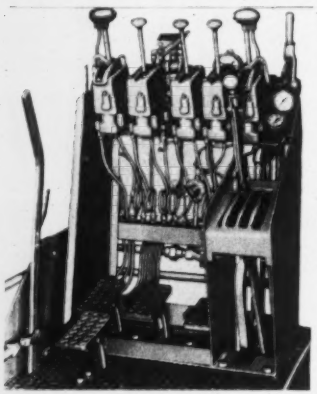

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LABOR

Labor balking at defense act changes

Labor leaders who have been going along with the Administration are sulking again. They don't like the way Congress is amending the Defense Production Act.

Observers don't think the latest peeve will result in another walkout, such as occurred last February. Then, the United Labor Policy Committee pulled its members off the Wage Stabilization Board to protest against the 10% "catchup wage formula. The complaint was that labor had an inadequate participation in defense policies and planning. That dispute was settled near the end of April (ENR May 17, p. 68) when membership of the WSB was increased and certain other concessions were made.

• **No walkouts, but**—There probably won't be another labor walkout on WSB, despite some apparent threats. More likely is some pretty stiff labor opposition to tight wage controls, if Congress sticks by weakening power to hold or roll back prices.

This opposition will be expressed by labor's representatives on WSB, and at the bargaining level through higher union wage demands and greater militancy behind them.

It works like this: The WSB labor members fight for a more liberal wage formula, refuse to back up a formula that falls short of what they think is fair. If the formula is adopted over their dissent, they will refuse to urge other union leaders and members to observe it in bargaining. Meanwhile, employers will try to hold settlements to the formula.

Result will be tougher disputes, more strikes.

• **Solution**—The alternative is for the public members of WSB to agree to a formula that labor members will accept and support. In this, they would be supported by the Administration, which doesn't want to offend organized labor again, and doesn't feel wage stabilization will work without active support of responsible labor leaders.

Most important signs of labor's balkiness have appeared on WSB itself. There, the labor members have refused to discuss—seriously—upward revision of the 10% (over Jan. 15, 1950) formula, until they know what Congress does to price controls in amending the Defense Act. Despite Stabilizer Eric Johnston's request for a new formula as far in advance as possible, he won't get it.

Instead, WSB is moving ahead developing other phases of its policies and wage stabilization program, and appointing regional wage stabilization directors in most of its 14 regions. Establishment of regional tripartite boards will await the results of Congressional amendments. The regional directors will have small staffs and legal counsel, and authority to approve wage-increase applications which come under existing WSB policies; supervise wage stabilization activities; decide appeals and supervise enforcement.

St. Louis carpenters work: dispute unsettled

Some 2,000 St. Louis, Mo., area carpenters (and several thousand other construction workers) were back at work last week, their month-long strike over a narrow interpretation of working rules awaiting final solution by the National Joint Board for Settlement of Jurisdictional Disputes.

The strike centered around a legalistic interpretation of working rules concerning the long-standing matter of whether carpenters or laborers should strip and transport forms for concrete.

Spokesmen for the national board at Washington said they expected to hand down a decision shortly, but emphasized that the decision would be a "job" decision in the strictest sense, and would not establish any precedent on other construction projects.

• **Dispute** — Under an agreement signed between building unions and employers in the area in October, 1949, carpenters are to strip wood forms when they are to be reused, and laborers then clean, oil and carry the forms to the next point of erection. Laborers then strip flat slab forms that are not to be reused.

But on July 8, carpenters singled out a legalistic point: They charged that laborers on one job in St. Louis were carrying forms from the place where they were constructed to the first point of use.

The joint board agreed that the carpenters had a point, and accepted the case for consideration.

Thereafter, the carpenters accused contractors of misrepresenting the facts to the joint board, and ordered a general strike. They refused to obey an order from the joint board to return to work—asserting that they

(*Continued on page 94*)

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Labor . . .

were not now striking on jurisdictional grounds, but against the tactics of the contractors.

With the help of union officials, John T. Dunlop, impartial chairman of the joint board, succeeded in getting the men back to work last week, and are now waiting for a decision on the matter.

Unions appeal award

Three Virginia construction labor unions carried out their promise of a week ago (ENR July 12, p. 67) by appealing an adverse lower court decision to the Virginia State Supreme Court.

The unions—the United Construction Workers, the United Mine Workers of America, and UMW's District 50—were assessed damages totalling $275,437 as a result of action on a construction job in Breathitt County, Ky., two years ago. Plaintiff was the Laburnum Construction Corp., Richmond.

Union attorneys posted a $325,000 appeal bond after the Richmond Circuit Court affirmed the judgment against the union. Construction company officials had claimed that the unions had intimidated workers on the job and caused loss of time and money. Union leaders said the action was involved in a legitimate labor dispute over collective bargaining.

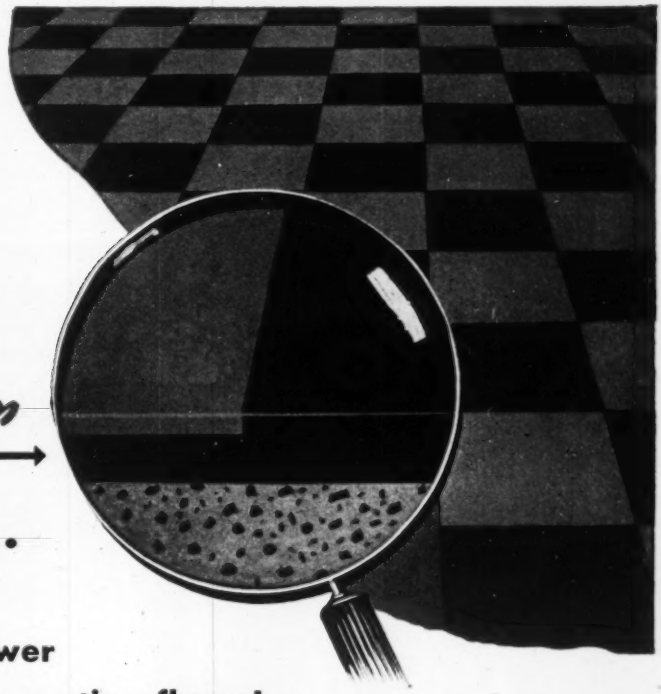
Walkout delays N. Y. water supply job

A walkout by more than 500 tunnel workers has halted construction of a 25-mi, $44,300,000 section of New York City's Delaware Aqueduct.

The men—members of Locals 7, 17 and 643 of the International Hod Carriers Union—stopped work July 5, despite union leaders' disclaimers of any authorization of such a work stoppage.

Conferences between union officials and representatives of Walsh and Perini Construction Co., N. Y., prime contractors on the section, resulted in an impasse. Union leaders said they had not authorized the strike, but that the men had undertaken it in protest against high costs of living. Company officials pointed to a contract signed with the union when work started—a contract they said which provides for arbitration, a no-strike agreement, and which was to run for the length of the job.

The tunnel section is a part of a system to carry water from the Catskill Mountain area to New York City. The men were working at four locations in Delaware and Sullivan counties.



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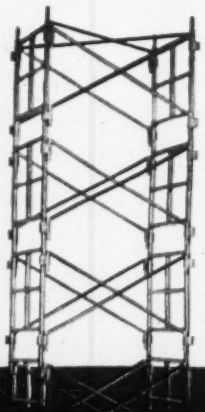

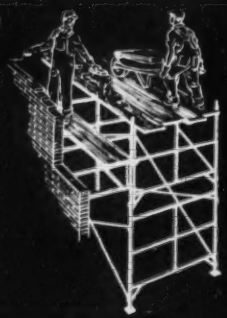

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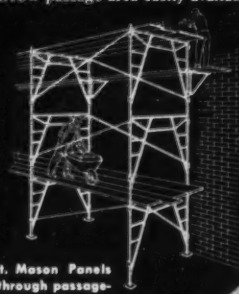

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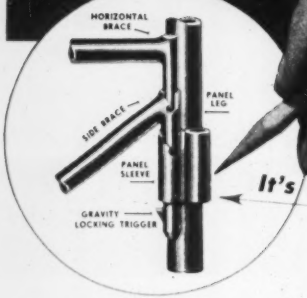

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Labor . . .

Operator walkout slows work on Joppa AEC plant

James Moran, industrial relations chief for the F. H. McGraw & Co., major contractor on the atomic energy plant near Joppa, Ill., says nearly 7,000 workers will be sent home unless a seven-day walkout of operating engineers is settled.

The company posted a notice Saturday that the construction job would be shut down today unless the engineers returned to work. C. A. Dillings, one of the company officials, signed the notice.

The operating engineers apparently walked out as a result of a jurisdictional dispute with electricians. The 7,000 workers, who may be sent home today, include employees on the atomic plant and the Joppa, Ill., steam plant.

Ebasco Service Company, contractor on the Joppa steam plant, suspended operation Saturday. Ebasco operators, according to an unofficial report, walked out Friday in a dispute with the company. The operators reportedly refused to continue work unless Ebasco paid them for a full day the previous Saturday when they were laid off because of heavy rain that halted work.

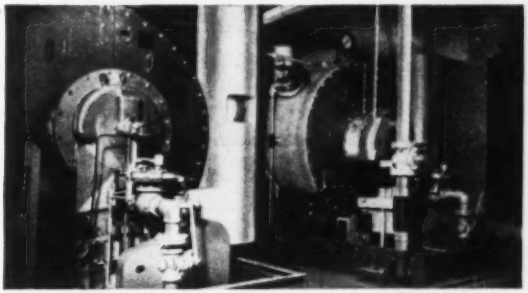
Labor Briefs . . .

• **Sheet metal workers strike**—Some 625 members of the AFL Sheet Metal Workers Union, Local 2, at Kansas City, Mo., went on strike after failure to complete negotiations on a new contract to replace the one expiring June 30. Trouble arose during negotiations over inclusion of a welfare plan providing hospitalization and accident insurance.

• **Arizona gives raises**—Minimum wages for laborers in Arizona was hiked 15 cents, to $1 an hour, by the state highway department. The order also applies to all political subdivisions of the state, in recognition of increasing costs of living, according to information from state officials.

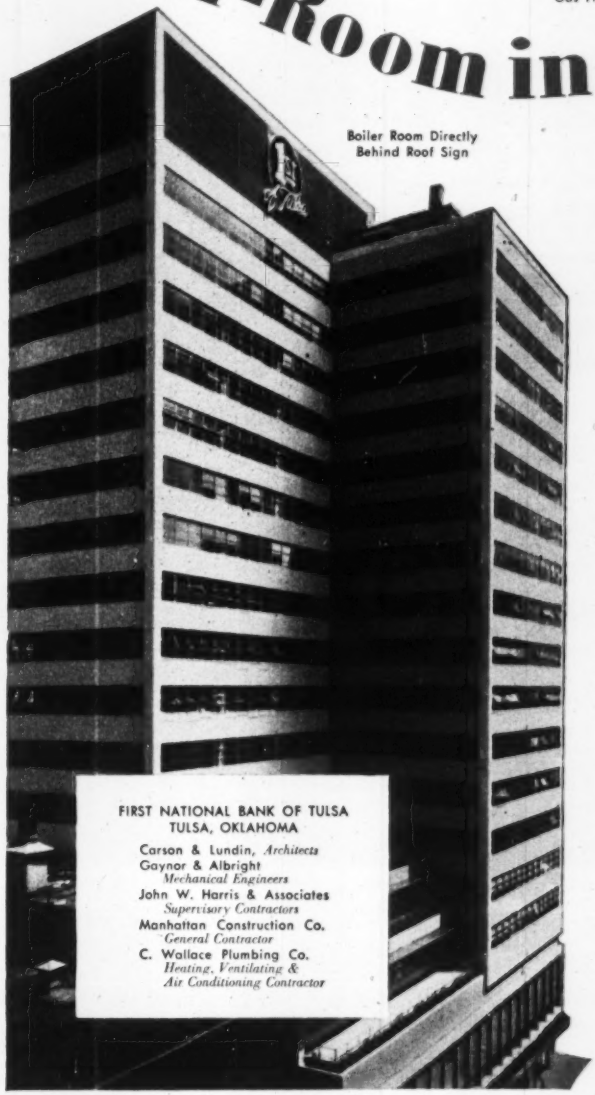
• **Houston workers raised**—Nearly 30,000 Houston building craftsmen got paychecks fatter by 15 cents an hour Friday, under terms of a contract signed with contractors last Fall. The contract tied wages to the cost of living, with an adjustment to be made as of July 1.

"The Boiler-Room? — On the Roof, Sir"



The "First of Tulsa" Boiler Room — Two Cleaver-Brooks 200 hp. Gas Fired Boilers

Boiler-Room in the SKY..



Boiler Room Directly Behind Roof Sign

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These are just a few of the many reasons why Cleaver-Brooks boilers were specified. Being completely self-contained and compact in design, requiring minimum head room and floor area, Cleaver-Brooks boilers presented no installation problem.

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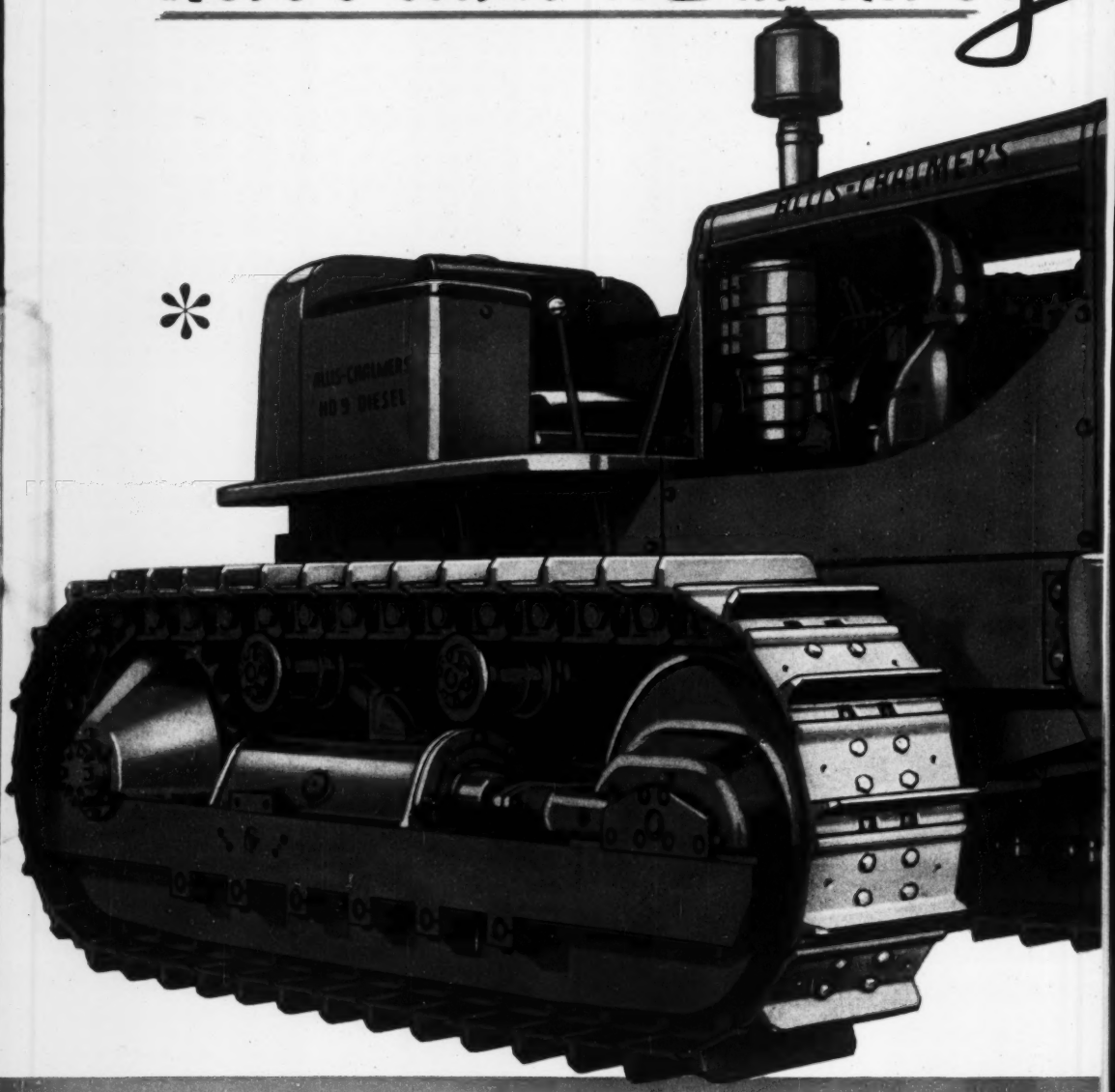

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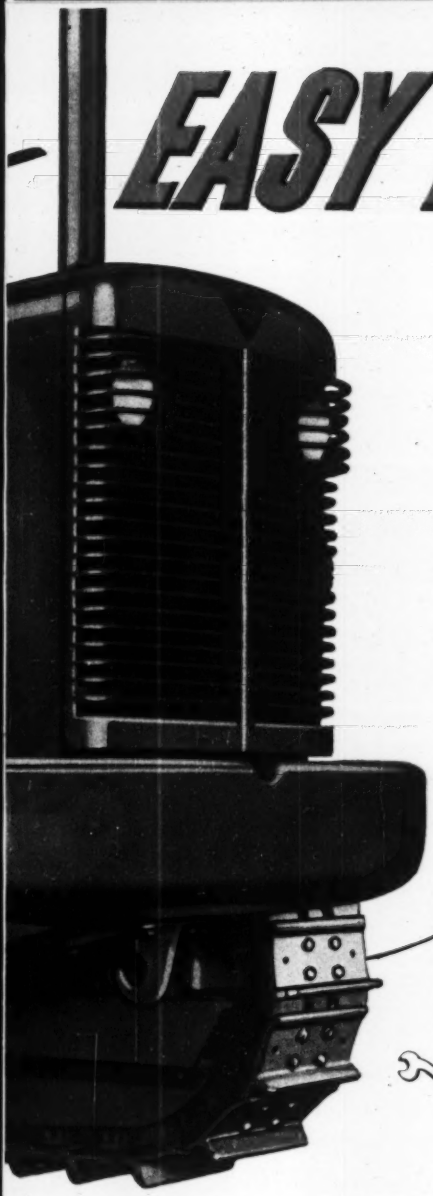

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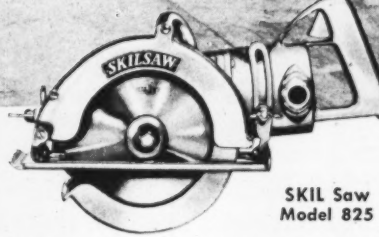

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CONSTRUCTION BUSINESS

Backlog shows effect of defense push

Showing the probable effects of the tremendous rush to get defense building under way—and to get non-defense structures started before controls clamped down—of the two previous months, ENGINEERING NEWS-RECORD's measured backlog of construction registered a net gain of only $43 million for June.

At the end of the six-month period of 1951, the cumulative backlog stood at $56,708,075,000, compared to $56,664,770,000 at the end of May (ENR June 14, p. 82).

What made the relatively small net gain interesting to construction men was the extremely sharp drop from the previous month, when the gain was $905 million, and from the months of February, March and April, when the gain was measured at an average of nearly three-quarters of a billion per month.

• **Backwash?** – Statisticians thought that the relatively slight backlog gain for June might result from an end of the push to get defense building going under the urgency of the world situation, plus the desire of many non-defense building owners to get going before controls stopped them.

Certainly, the amount of work advanced out of the backlog to active status is greater this year than in any of the past two years. As of June 30, a total of $3,572 million had been moved to active status during the first six months of 1951. In the same period of 1950, $2,497 million went to active status; in 1949, $1,743 million moved over.

The slight gain might also reflect, some observers thought, some caution on the part of prospective construction buyers—who are facing a future made uncertain by indecision over controls, materials shortages, inflationary costs, higher tax rates.

In any case, these are the facts: ENR's backlog is kept up to date by measuring new projects proposed, and subtracting from the total those projects that are advanced to active stages.

During June, projects valued at $593 million were lifted out of the backlog and advanced to active status. Projects totalling $633 million were proposed, leaving the net gain of $43 million.

In May, projects valued at $506 million were advanced to active status, but new work valued at $1,411 million was proposed, for a net gain of $905 million. In April, $497 million was advanced to active status, $1,094 was proposed, and the net gain was $596 million.

By comparison with 1950 and 1949 in the same months, the work proposed in April and May of those years was considerably less than in 1951 ($506 million and $468 million in 1950, $695 million and $374 million in 1949). But for June, 1950, $821 million worth of new projects was proposed—well above the 1951 figure.

• **Components**—Biggest factor in the rise for June, 1951, was again industrial construction, which went up by $103 million to reach a cumulative total of $7,596,051,000 on the books. Private commercial construction also registered a gain, moving up by $94 million to a total of $7,393,447,000.

Overall, all types of private construction accounted for the increase, ringing up a gain of $208 million, to reach $20,965,391,000. Public construction saw $164 million more go out than came in during the month, stood at $35,742,684,000.

High housing starts bring builder protest

News that the U. S. Bureau of Labor Statistics has reported 130,000 new housing unit starts for June brought charges of socialization from private builders, and silence from government agencies.

The BLS preliminary announcement for June also carried with it an upward revision of 800 units for the March figures. With the June total, housing starts for the first six months of 1951, BLS said, now stand at 575,300. This rate is far above that necessary to reach the announced goal of 800-850,000 starts for 1951, which planners had attempted to enforce by means of credit restrictions and other controls. Starts for the 6 month period are 18% below 1950's 705,700 units for the same period, however.

Private homebuilders represented by the National Association of Home Builders were unhappy with the news. Only two weeks ago (ENR July 5, p. 21) they thought they saw hopes of relaxation of controls over their industry—predicted, in fact that if controls were not relaxed the industry would toboggan disastrously in the second half of the year.

Commenting on the housing starts figure, NAHB centered its fire on its

(*Continued on p. 102*)

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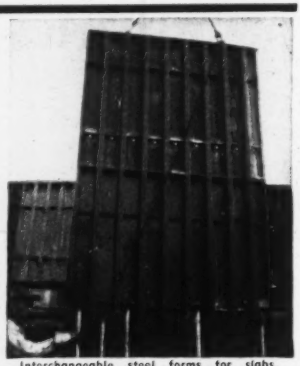

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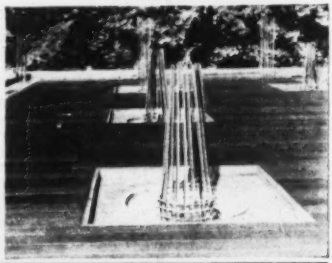

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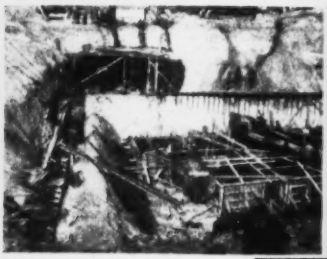

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Construction business . . .

own figures, which indicated that, of the 130,000 June starts, 42,300 were public housing, 87,700 were privately built.

Frank W. Cortright, executive vice president of NAHB, urged that Congress eliminate "all further construction of socialized public housing" during the emergency period.

"The private home building industry has been cut 40% by federal regulations—and has patriotically accepted this reduction," said Cortright. "However, it is unwilling to see socialized public housing move up ten times its monthly volume in the past, in view of . . . critical shortages."

Cortright added the statement that, given the opportunity private builders can erect housing far more efficiently than can the government. "At the same time," he added "(the property) can yield taxes to support the defense effort."

In the absence of Housing and Home Finance Administrator Foley (on vacation) HHFA offered no immediate comment on the situation.

FNMA moves to loosen mortgage money supply

In a move aimed at loosening a tight mortgage market (ENR May 17, p. 75) the Housing and Home Finance Agency said last week it had set aside $350 million for purchase of eligible mortgages.

The move was made by directing the Federal National Mortgage Association ("Fannie Mae") to use its uncommitted funds to purchase mortgages financed to provide housing for defense workers in critical defense housing areas, and for military housing financed under the Wherry Act.

Raymond M. Foley, HHFA administrator, said the two-month waiting period previously required before mortgages could be sold to FNMA will now be waived for insured or guaranteed mortgages on programmed defense and military housing.

The tightening mortgage market has been credited to the government's action in "unpegging" (allowing to seek market level) government bonds, and to a state of balance in the books of large private lending institutions.

Urban building shows drop

Valuation of all urban building in U. S. communities of 2,500 population or more dropped slightly in April (under March), the Bureau of Labor Statistics said last week.

Total valuation for April was $753.6 million, compared to $770 million for March and $923.1 million for April, 1950, BLS said. This represents a decline of 2.2% for April under March, a drop of 18.4% for April, 1951, under April, 1950.

Rather surprisingly, the total for new residential building was the only one to show a gain over the previous month, although it was far below figures for a year ago. For the month of April, residential buildings valued at $438.6 million were authorized—a jump of 5.5% over March, but 26.8% below April, 1950.

New non-residential building was at $229.5 million, a drop of 13% under March and 2.6% under the same month of 1950; additions and alterations were set at $85.5 million, dropping 5.6% under March and 2.9% under 1950.

In the non-residential category, office and bank buildings authorized showed the biggest gain, up 157% from April, 1950. Factories and workshops ran second, up 97% from 1950.

Construction spending up, says Commerce

Expenditures for new construction put in place in June, 1951, totalled $2.7 billion, an increase of six percent over May, the U.S. Bureau of Labor Statistics and the Building Materials Division, U.S. Department of Commerce, have announced in a joint release Tuesday.

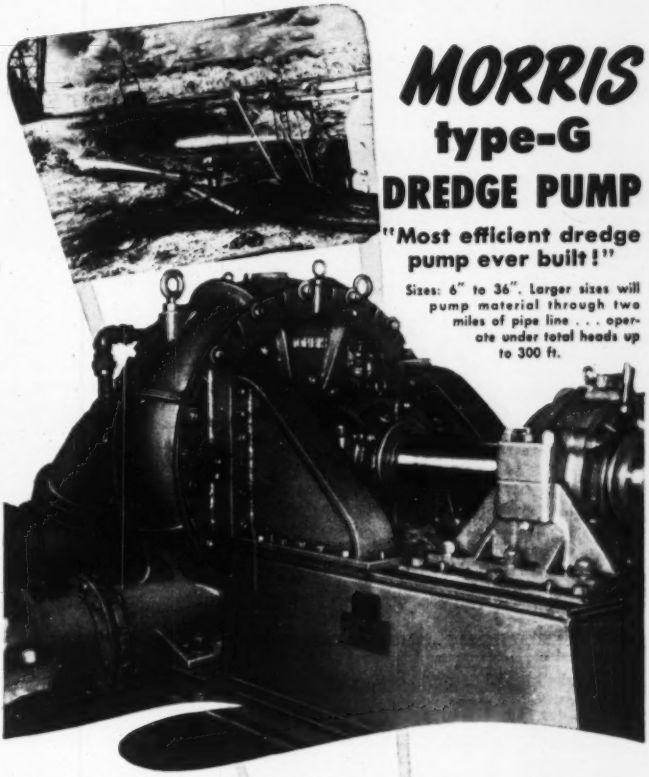
With the exception of commercial building—which the release said was beginning to reflect the effects of construction controls—almost all types of constructing expenditures increased over May. The relative gain in private residential construction, however, was considerably less than during the comparable period in previous postwar years.

Seasonal expansion of highway construction accounted for a large part of the $50 million increase over the month in public construction. Dollar volume of spending on military and naval facilities, not yet fully under way, rose only slightly.

Although remaining at a high level, expenditures on private residential construction were 23% below June, 1950; private industrial, commercial and public utility construction, although significantly higher than in June, 1950, did not offset the decline in residential building.

The government agencies said that total expenditures for the first six months of the year were 16% above the same period in 1950, reaching almost $14 billion.

(*Continued on p. 104*)



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Construction business . . .

Machinery shipments Top $106 million

Shipments of earthmoving and excavating machinery (excluding tractors) were valued at more than $106 million in the first quarter of 1951, the Bureau of the Census said last week.

The shipments recorded by the bureau represent an increase of 21% over the fourth quarter of 1950. Breaking down its figures, the bureau said that first-quarter shipments of construction machinery for mounting on tractors and power cranes and shovels jumped 4% and 25%, respectively, over the fourth quarter of 1950. Factory shipments for export (other than power cranes, power shovels and tractors) totalled $15 million in the first quarter.

(Data on tracklaying tractors and wheel-type tractors are collected on special forms, starting with the first quarter of 1951.)

In detail, the report showed dollar value of all shipments, based on net billing price on an f.o.b. factory base, for all items except power cranes and shovels. These last two are figured on the basis of cost to the ultimate user.

Included in the figures were:

Power cranes and shovels (¾–2½ yd capacity)—1,689 units, valued at $40.7 million; ditchers and trenchers (ladder and wheel type)—232 units, valued at $2.4 million; carrying and hauling scrapers (for use with wheel-type or tracklaying tractors)—1,203 units, valued at $8,224; motor graders and light maintainers (45-90 brake horsepower)—2,668 units, valued at $21.8 million.

Rollers (self-propelled, tamping and sheepsfoot, pneumatic, drawn)—1,230 units, valued at $4 million; trucks and trailers, off-highway type (not including vehicles of sizes and weights reported to the Automobile Manufacturers Association)—516 units, valued at $8.3 million; other excavating and earthmoving equipment (including loaders, discs, ditchers and trenchers of blade type, cranes for mounting on tractors)—value set at $1.4 million.

Biggest export item was dozers (hydraulic, angle and bull) with 813 items, sold for a value of $1.5 million.

Equipment cost index shows small decline

The Marshall and Stevens Equipment Cost Index dropped slightly for June, to reach 180.9, the company reported last week. The March index was 181.2, the figure for June, 1950,

was 163.1 (index base is 1913-100).

The organization's Contractors' Equipment Index also fell slightly—to 177.7, compared to 178.6 for March.

The Marshall and Stevens Building Cost Index was placed at 432 for June, compared to 430 for March.

Business Briefs . . .

• **Plan paper plant**—Armed with a $25,000,000 certificate of necessity, officials of the National Container Corp. are considering a site in the South for the plant. Areas near an existing plant (for Kraft paper) at Jacksonville, Fla., and near Valdosta, Ga., are under consideration.

• **Chrysler jet plant**—A company announcement said the Chrysler Corporation will build and operate for the Navy a huge new jet-engine plant in MacComb County, Michigan. Land has not been completely acquired, and no details are available as to size or cost of the plant.

• **Lumber production high**—Continuing at a high pace for the third straight month, production of lumber again outran both new orders and shipments for the week ending June 30. New orders were 20.1% behind production; shipments were 4.8% behind for the week, said the National Lumber Manufacturers' Assn.

• **OK L. A. housing**—Nine sites for construction of $100 million in federally financed housing projects were approved by the Los Angeles city council—the lawgivers upholding variances in zoning ordinances in eight of the nine instances.

• **N. Y. Housing**—New York City's Housing Authority has filed plans for a $31,400,000 low-rent housing project on the city's Lower East Side, to be known as Baruch Houses. The project—biggest single venture in the authority's history—will provide housing for 2,194 families in 17 buildings on a 28-acre site. Architect is Richard Roth, of Emery Roth & Sons.

• **Long Island Parkway link**—Another step in filling in missing links in the network of parkways on Long Island was taken last week, when the Long Island State Parkway Commission took bids on a three-mile extension of the Northern-Sagtikos State Parkway, at the far eastern end of the parkway system.

• **Cement shipments**—Shipments of finished Portland cement totalled 24,894,000 barrels for May, 1951, representing a gain of 9% over shipments for May, 1950.

UNIT PRICES BID BY CONTRACTORS

Transmission lines, Missouri River Basin Project

Four bids on the construction of the Bismark-Mobridge-Oahe and the Fort Randall-Oahe Transmission Lines were received June 12 by the Bureau of Reclamation. Both lines are part of the Missouri River Basin Project in North and South Dakota. Although originally two separate jobs, the Bureau accepted "combination" bids (in which the two lines were treated as one project) and separate bids on each.

Material will be furnished by the government except where noted otherwise in the unit price table. The work must be completed in accordance with the following schedule: Bismark Line, schedules 1 and 3, 883 days each; schedules 2 and 4, 1,217 days each; Fort Randall Line, schedule 1, 790 days; and schedule 2, 854 days. There is a $100 penalty for each day of delay on each schedule.

Minimum wage rates are: skilled workers, $1.60-$2.275; semi-skilled, $1.40-$1.80; and common, $1.00.

Bidders on the combined work were:

1 Hallett Constr. Co., Line Dept., Crosby, Minn., & Continental Co., Dayton, Ohio	$5,375,000
2 Parker-Schram Co., Portland, Ore	6,080,763
4 Donovan Constr. Co., Saint Paul, Minn	7,580,000
Engineer's estimate	5,801,463

Bismark-Mobridge Transmission Line—(Part I)

Schedule No. 1

Items	Quantity		Unit prices 1 C	2
Clearing land & right-of-way		ls	$70.000	$6.350
Furnish & install:				
In right-of-way fences, prefabricated gates	10	ea	100.00	56.50
Barbed-wire gates	20	ea	60.00	46.00
Fence grounding posts & for grounding fences	514	ea	6.50	6.50
Tower grounding rods & for grounding towers	1,908	ea	12.50	17.75
Excavation for tower site				
For 18" dia type A footings	250	cy	3.00	1.50
30"	940	cy	9.00	17.50
For type B footings	940	cy	8.00	9.00
For type C footings	5,600	cy	5.00	7.50
Furnish & handle cement	2,500	bbl	6.40	6.50
Reinforcement bars, furn & place	361,000	lb	0.135	0.178
Concrete in type A footings	1,225	cy	34.75	45.00
In type B & C footings	600	cy	39.50	37.50
Place steel stubs for tower footings	1,908	ea	15.00	23.00
Erect steel tower	7,500,000	lb	0.033	0.042
Total			**$552,744.75**	**$597,085**
Schedule No. 2				
Three 954,000-circular mil ACSR conductors, f & string	94	mi	6,500	7,695
Vibration dampers on ACSR cond, f & attach	2,856	ea	14.00	13.75
Single-string suspension insulator assembly with 16 insulator units, f, assemble & attach	1,412	ea	70.00	112.00
Double-string tension insul assembly with 17 insul unit per string, f, assemble & attach	66	ea	175.00	555.00
Two ½", galv-steel overhead ground-wire, f & string	94	mi	1,150	1,190

Bismark-Mobridge Transmission Line—(Part II)

Schedule No. 3

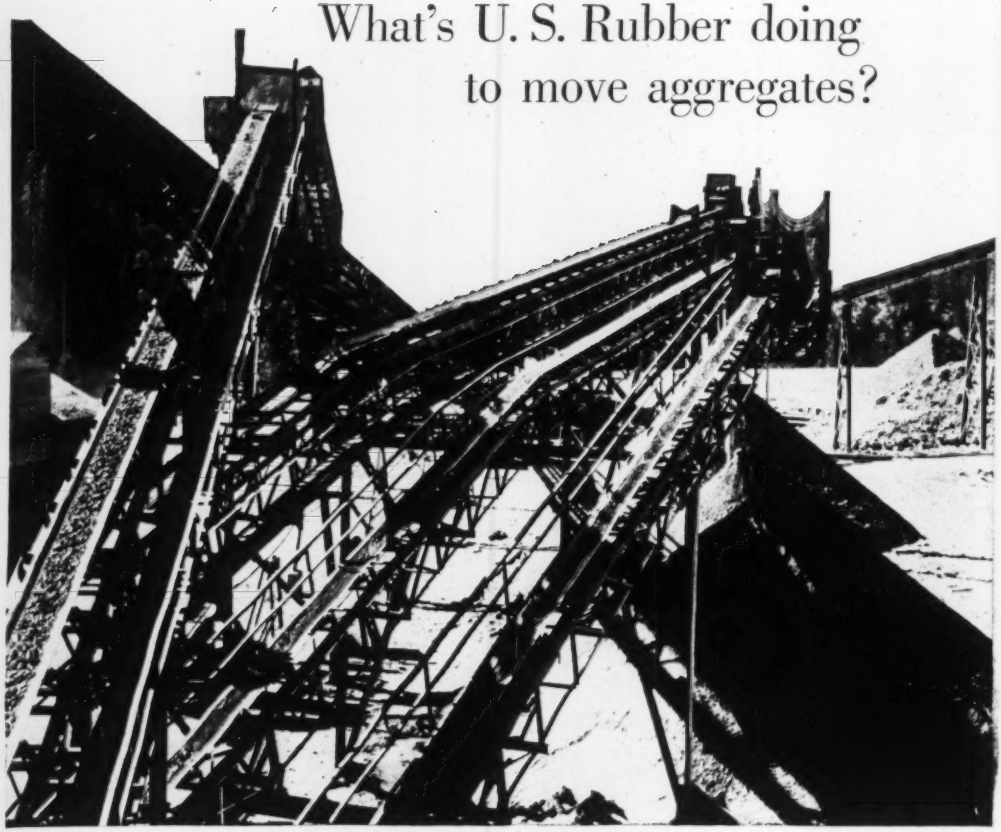
Items	Quantity		Unit prices 1 C	2
Vibration dampers on overhd grd wire f & attach	3,448	ea	8.00	8.00
Total			**$897,058**	**$1,096,818**
Schedule No. 3				
Clearing land & right-of-way		ls	55,000	6,350
Prefabricated gate in right-of-way fence, f & install	10	ea	100.00	56.50
Barbed-wire gate, install	20	ea	60.00	46.00
Fence grounding posts & for grounding fences, f & i	240	ea	6.50	6.50
Tower grounding rods & for grounding tower, f & i	1,464	ea	12.50	17.50
Excavation for tower site	250	cy	3.00	1.50
For 18" dia type A footings	750	cy	9.00	17.50
30"	26	cy	10.00	9.00
For type B footings	535	cy	8.00	7.50
For type C footings	3,300	cy	5.00	1.75
Cement, f & handle	1,700	bbl	6.40	6.50
Reinf bars, f & place	263,000	lb	0.135	0.178
Concrete in type A footings	870	cy	34.75	40.00
In type B & C foot	370	cy	39.50	32.00
Place steel stubs for tower footing	1,464	ea	15.00	21.50
Erect steel tower	5,760,000	lb	0.033	0.046
Total			**$408,872.50**	**$459,842.50**
Schedule No. 4				
Three 954,000-circular mil ACSR conductors, f & string	73	mi	6,500	7,845
Vibration dampers on ACSR cond, f & attach	2,208	ea	14.00	13.75
Single-string suspension insul assembly with 16 insul units, f, assemb & attach	1,090	ea	70.00	112.00
Double-string tension insul assemb with 17 insul units, per string, f, a & attach	24	ea	175.00	1,042
Two ½" galv-steel overhd grnd wire, f & string	73	mi	1,150	1,190
Vibration dampers on overhd gr wire, f & attach	2,648	ea	8.00	8.00
Total			**$691,046**	**$858,187**

Fort Randall-Oahe Transmission Line—(Part II)

Schedule No. 1

Items	Quantity		Unit prices 1 C	2
Clearing land & right-of-way		ls	85,000	12,725
Prefabricated gate in right-of-way fences, f & inst	20	ea	100.00	56.50
Barbed-wire gate, f & inst	50	ea	60.00	46.00
Fence grnding post & for grnding fence, f & inst	740	ea	6.50	6.50
Tower grnding rod & for grnding tower, f & inst	2,780	ea	12.50	17.75
Excavation for tower sites	2,000	cy	2.50	1.50
for type A footing	4,300	cy	8.00	7.40
Type B	2,300	cy	6.00	3.60
Type C	10,500	cy	5.00	1.90
Cement, f & handle	7,300	bbl	6.20	6.30
Reinf bars, f & place	823,000	lb	0.135	0.178
Concrete in type A footings	4,600	cy	33.00	32.50
In type B & C footings	1,300	cy	37.00	36.50
Place steel stubs for tower footing	2,788	ea	16.00	21.50
Erect steel towers	18,300,000	lb	0.033	0.0397
Total			**$1,240,033**	**$1,299,796**
Schedule No. 2				
Three 795,000-circular mil ACSR cond, f & str	85	mi	6,000	6,800
Six 795,000-circular mil ACSR cond, f & str	50	mi	12,000	13,260
Vibration dampers on ACSR cond, f & attach	5,600	ea	13.00	12.75
Single-string suspension insul assemb with 16 insul units, f, assemb & attach	2,775	ea	70.00	109.50
Double-string tension insul assemb with 17 insul units per string, f, assemb & attach	156	ea	175.00	560.00
Two ½" galv-steel overhd grnd wire, f & string	135	mi	1,150	1,200
Vibration dampers on overhd gr wire, f & attach	5,464	mi	9.00	8.00
Total			**$1,608,776**	**$1,909,334.50**
Total, Part I			$2,549,721.25	$3,011,932.50
Total, Part II			2,848,809.00	3,182,880.50
Parts I & II			**$5,375,000.00**	**$6,080,763.00**

What's U. S. Rubber doing to move aggregates?



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Compiled by Business News Department—Engineering News-Record, 330 W. 42nd St., New York 18, N. Y.

ELSIE EAVES, Manager — *J. A. MAHONEY, Reports* — *M. R. ROESSLER, Statistics*

NEW ENGLAND

BIDS ASKED—BUILDINGS

Conn., New Hartford—SCHOOL—B.A. About 7/30—Town Bd. Educ., Elementary School, Pine Meadow. CD 11/24/50.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

P. Di Mascio & Son Inc., 73 Olney St., Dorchester, Mass. Contract Awarded, $105,172, laying 5 3/10 mi. water mains, install service pipe, etc., PLYMOUTH, N. H. Bd. Water Comrs., Plymouth, N. H.

O. W. Miller Co., Inc., 200 North St., Ludlow, Mass. Contract Awarded, $35,000, dam imprvs., SWANTON, VT., Village Higate, Vt. Village, Swanton, Vt., Charles T. Main, Inc., 80 Federal St., Boston, Mass., engr.

† **C. J. Maney Co., Inc.**, 24 Dane St., Somerville, Mass., Contract Awarded, $650,000, wharf repairs, Army Base, BOSTON, MASS. U. S. Eng., 857 Commonwealth Ave., Boston, Mass.

† **Jefferson Constr. Co.**, 75 First St., Cambridge, Mass. Low Bidder, $775,000, readiness hangar bldg., alert hangar, Westover Air Force Base, CHICOPEE, MASS. U. S. Eng., 857 Commonwealth Bldg., Boston, Mass. Bids June 22.

RHODE ISLAND—Div. Purchases, State House, Providence, R. I.

Campanella & Cardi Constr. Co., 780 Jefferson Blvd., Warwick, R. I. Low Bidder, $91,225, road repairs, Contr. 5107, Providence Co. CD 6/15.

† **Merritt-Chapman & Scott Corp.**, 292 Pequot Ave., New London, Conn. Low Bidder, $71,390, install 5 kv submarine cable from Coasters Harbor Island to Goat Island, No. 29271, NEWPORT, R. I. P. Wks. Office, Newport, R. I. Bids June 25. CD 6/21.

† **Sherry Corp.**, 823 Davol St., Fall River, Mass. Contract Awarded, $114,589, road repairs, Naval Training Station, No. 30292, NEWPORT, R. I. Pub. Wks. Office, Naval Base, Newport, R. I. Bids June 26.

† **A. T. R. Constr. Co.**, Connell Hy., Newport, R. I. Contract Awarded, $393,680, rehabilitation fuel distr. sys., NEWPORT, R. I., Pub. Wks. Office, Naval Base, Newport, R. I. Bids May 23. CD 6/1, under LB.

John J. McHale & Sons, Inc., 101 Ferris St., Pawtucket, R. I. Contract Awarded, $248,000, PHA 2-2, 228 unit excavation, piles and fdns., Weeden St., PAWTUCKET, R. I. Bids June 22.

† **A. A. La Porte**, 1601 Wilson Blvd., Arlington, Va. Low Bidder, $111,908, maintenance dredging Connecticut River, below Hartford, 19-016-51-66, CONNECTICUT. U. S. Eng., 857 Commonwealth Ave., Boston, Mass. Bids June 25. CD 6/26.

BUILDINGS

LOW BIDS AND CONTRACTS

† **Rich Bros. Constr. Co.**, 410 Park Square Bldg., Boston, Mass. Low Bidder, $322,010, Items 1 to 7, meat cutting plant addns., alterations, officers mess and enlisted mens mess, Inv. No. 19-035-51-170, AYER, MASS. U. S. Army, Fort Devens, Mass.

▲ **John Bowen Co., Inc.**, 171 Boston St., Dorchester, Mass. Contract Awarded, $5,996,993, HOUSING, Mission Hill Extension, Proj. PHA Mass 2-14, Prentiss Parker and Ruggles Sts., Roxbury, BOSTON, MASS. City of Boston Housing Auth., 230 Congress St., Boston, Mass. CD 6/26, under LB.

† **Wexler Constr. Co.**, 2 Elm St., Brookline, Mass. Contract Awarded, $500,000, rehabilitate and alter HOSPITAL area and misc. bldgs., Camp Edwards, FALMOUTH, MASS. U. S. Eng., 857 Commonwealth Ave., Bston, Mass.

Canter Constr. Co., 185 Corey Rd., Brookline, Mass. Low Bidder, $565,000, SANATORIUM addn., alterations, POCASSET, MASS. Barnstable County Sanatorium, Pocasset, Mass. Bids June 26. CD 6/19.

▲ **Gilbane Building Co.**, 90 Calverly St., Providence, R. I. Contract Awarded, $8,000,000, Mfg. PLANT, incl. bldg. and equip., Brook St., WORCESTER, MASS. Norton Co., 1 New Bond St., Worcester, Mass. Andersson Nichols & Co., 53 State St., Boston, Mass., engrs.

Swanson Janson Co., 82 Foster St., Worcester, Mass. Contract Awarded, $750,000, WAREHOUSE and SHOWROOM, Belmont St. and Lake Ave., WORCESTER, MASS. Shaw Co., 81 Mechanic St., Worcester, Mass. Awarded March 9. CD 3/16, under LB.

Dimeo Constr. Co., 75 Westminster St., Providence, R. I. Contract Awarded, $560,360, ELEMENTARY SCHOOL, Stadium area, CRANSTON, R. I. City, supt. schools, Park Ave., Cranston, R. I. Bids June 12, awarded June 27. CD 6/21, under LB.

James Romeo & Assoc., 60 Washington St., Tuckahoe, N. Y. Contract Awarded, $874,930, Senior High SCHOOL, addn., alterations, Renshaw Rd., DARIEN, CONN., Town, Town Hall, Darien, Conn. Awarded June 25. CD 5/31, under LB.

Henry M. Soule Co., 421 Walcott St., Pawtucket, R. I. Contract Awarded, $179,507, FACTORY alterations addns., PAWTUCKET, R. I. Seekonk Lace Co., Waterman St., Hyde and Toble Aves., Pawtucket, R. I.

MIDDLE ATLANTIC

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

Sherley Herman Co., 1807 Elmwood St., Buffalo, N. Y. Contract Awarded, $350,000, incinerator plant, BUFFALO, N. Y. City, City Hall, Buffalo, N. Y. Greeley & Hanson, 220 S. State St., Chicago 4, Ill., engrs. CD 5/10.

▲ **Mt. Vernon Contr. Co.**, 439 N. Terrace Ave., Mt. Vernon N. Y. Contract Awarded, $521,120, Exten. airport runway at Westchester County Airport, HARRISON, N. Y. National Guard Bureau, Acting U. S. Property & Disbursing Officer for New York State Arsenal, 201 64 St., Brooklyn 21, N. Y. Bids June 27. CD 6/13.

▲ **Thompson-Starrett Co., Inc.**, 444 Madison Ave., New York 22, N. Y. Contract Awarded, Approx. $1,800,000, Hangar at Westchester County Airport, WHITE PLAINS, N. Y. County Airport Corp., White Plains, N. Y." Suspension Structures, Inc., 50 E. 42 St., New York 17, N. Y., engr. CD 11/1/44.

▲ **Miele-Salvatore**, 90 Millburn Ave., Maplewood, N. J., Low Bidder, $616,346, Sect. 1; $627,350, Sect. 2, **Charles F. Smith & Sons, Inc.**, Walnut and Birch Sts., Kennett Square, Pa., entire job, $1,201,389, installing 24,725 ft. 72-in. diam. steel pipe for Ramapo Force Main from Green Swamp Dam 4 in Wanaque to Pompton Lakes, incl. hy. river and railroad crossings WANAQUE, N. J. North Jersey District Water Supply Comn., Wanaque, N. J. Bids June 13. CD 5/29.

PENNSYLVANIA—State Hy. Dpt., 506 N. Office Bldg., Harrisburg, Pa.,

Reed & Kuhn, Inc., Elysburg, Pa. Contract Awarded, $552,848, Widn. 7.71 mi. 4 ft. and surf. new and existing pavement with bit. 22 ft. wide, incl. one reinf.-con. structure and two I-beam bridges from near Steam Valley to north of Buttonwood, U. S. 15, Lycoming Co. Bids June 28. CD 7/3, under LB.

MARYLAND—State Roads Comn., 108 E. Lexington St., Baltimore 2, Md.

T. B. Gatch & Sons, Inc., 5928 Belair Rd., Baltimore, Md., Low Bidder, $280,030, stone, $257,165, slag, Contr. T-144-215, b. conc. surf. and wid'n. 4.57 mi. U. S. Route 50 from Choptank River to Trappe, Talbot Co., CD 6/12.

MARYLAND—STATE Rds. Comn., 108 E. Lexington St., Baltimore 2, Md.

John H. Ensey, 1619 Ridgely St., Baltimore, Md. Contract Awarded, $520,700, Grading, drainage, surf., Queens Chapel Rd., State Rte. 300, Contr. P-522-3-515, Prince George's Co. Bids May 22. CD 5/31, under LB.

PROJECTS COVERED

Projects—By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterways $34,000; other public works $60,000; industrial buildings $82,000; other buildings $300,000.

Classes of Construction

(Name in order of Listing)

Water Supply
Sewers, Waste Disposal
Bridges
Streets & Roads
Earthwork, Waterways
Latin America
Public Buildings
Commercial Buildings
Industrial Buildings
Unclassified

Stages Reported

PROPOSED WORK: Including appointment of engineers or architects.

BIDS ASKED (new announcements only). For full calendar, see also preceding issues of ENR.

LOW BIDDERS: On jobs below $500,000 value all low bidder news will be the final reports published on the projects involved except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.

CONTRACTS AWARDED: Except awards to low bidders previously reported in low bidder stage.

Dates shown are of issue in which last previous report was published.

Symbols and Abbreviations Include:

† Federal Government
▲ Project of $1,000,000 or over.
B.A. Bids Asked
ENR Engineering News-Record
CD Engineering News-Record Construction Daily

Payne & Oliver Co., Inc., Baileys Cross Rds. Va., Wash., D. C., Low Bidder, Bid 1, $273,808; Bids 2, $723,-983 c. conc. curbs and gutters, b. conc. surf., various locations; Bids June 27: **Carson & Gruman**, 33 and K Sts. N.W., $67,280 stone; $69,380 slag, bit. various roadway WASHINGTON, D. C. Bids June 14. Distr. Comrs., District Bldg., Wash. 4, D. C. CD 1/27/44.

Corson & Gruman Co., 33 and K Sts. N.W., Wash., D. C., Contract Awarded, $248,930, c. conc. and c. conc. curt or alt. South Dakota Ave. N.E. from Allston St. to Riggs Rd. WASHINGTON, D. C. Distr. Comrs., District Bldg., Wash., D. C. Bids June 19. Awarded July 3. CD 1/27/44.

BUILDINGS

LOW BIDS AND CONTRACTS

Wigton-Abbott Corp., 1225 South Ave., Plainfield, N. J., Contract Awarded, $100,000, 1 story, rein.-con. LABORATORY, 125 Lake Ave., MARINERS HARBOR, N. Y. Wallerstein Co., 180 Madison Ave. New York 16, N. Y., Lockwood Greene Engineers, Inc., 10 Rockefeller Plaza, New York 20, N. Y. engr.

Gotham Constr. Corp., 501 Fifth Ave., New York, 17, N. Y. Contract Awarded, Approx. $500,000, Altering DEPARTMENT STORE at site, NEW YORK, N. Y. Hearns-Bronx, Third Ave. and 150 St., New York, N. Y. Adolph Novak, 82 Beaver St., New York 4, N. Y., archt.

Research Corp., 405 Lexington Ave., New York 17, N. Y., Contract Awarded, $516,625, furnishing, installing fly ash collecting equip. for two 450,000 lb. per hr. steam boilers for 74th Street POWER PLANT, New York City Transit System, NEW YORK, N. Y. Bd. Transportation, 370 Jay St., Brooklyn 1, N. Y., Bids Apr. 11. CD 5/1, under LB.

▲ **Fox Div Apartments Corp.**, c/o H. J. Goodwin, 1423 Spring Garden St., Phila., Pa. Contract Awarded, $2,597,000, Construct, manage, finance garden APARTMENTS, FORT DIX, N. J. Dpt. Army, 121 N. Broad St., Phila., Pa. Bids June 22. CD 6/12.

▲ **Lanigan & Hoke**, 431 E. Collom St., Phila., Pa. Contract Awarded, $5,233,332, Construct, manage, finance HOUSING, FORT MONMOUTH, N. J. Dpt. Army, 121 N Broad St., Phila. Pa., Bids June 25. CD 6/12.

▲ **Vermilya-Brown, Inc.**, 100 E. 42 St., New York, N. Y. Contract Awarded, $1,804,017, 3 story brick, steel, stone INSTITUTE of Microbiology near intersection of Hoe's Lane and Frelinghuysen Ave. on University Heights Campus, incl. lecture hall, seminar rooms, library, museum, Piscataway Twp., NEW BRUNSWICK, N. J. Rutgers University, College Ave., New Brunswick, N. J. Bids May 29, awarded July 6. CD 6/22, under LB.

† **Worthmann & Sons, Inc.**, 109 E. 29 St., New York, 16, N. Y., Contract Awarded, $784,253, rehabilitation program at Fort Hancock, SANDY HOOK, N. J. U. S. Eng., 80 Lafayette St., New York, 13, N. Y. Bids June 22.

▲ **Beaver Co. Housing Auth.**, Beaver, Pa., rejected bids June 18. L. B. $1,149,000. 2 story bsmnt., 25x112 ft., brick, veneer HOUSING, Proj. Pa. 14-9, ALIQUIPPA, PA. CD 6/8.

Mellon Stuart Co., 210 E. Parkway, N. S., Pittsburgh, Pa. Low Bidder, $824,000, 1 and 2 story brick HOUSING, 20 bldgs. and community bldg., Proj. PM-14-7, BEAVER FALLS, Pa., Beaver Co. Housing Auth., Beaver, Pa., Bids June 18. CD 6/13.

United Constr. Co., 1204 Lincoln Ave., Pittsburgh, Pa. Contract Awarded, $823,000, 2 story, bsmnt., brick veneer HOUSING, Proj. PA-17-4, DONORA, PA. Washington Co. Housing Auth., Washington, Pa. Bids June 18. CD 6/28, under LB.

George M. Chilli, 805 Ann St., Homestead, Pa. Contract Awarded, $882,800, 2 story bsmnt., brick, concrete, steel frame, Junior Senior HIGH SCHOOL addn., GLENSHAW, PA. School Dist., Shaler Twp., Glenshaw, Pa. Bids June 26. CD 6/13.

▲ **L-D Building Co.**, Latrobe, Pa. Low Bidder, $2,647,490, 50 buildings, 2 story brick veneer HOUSING, Proj. 19-3, JOHNSTOWN, PA. Johnstown Housing Auth., Johnstown, Pa. Bids June 21. CD 6/13.

▲ **Pittsburgh Parking Auth.**, City County Bldg., Pittsburgh, Pa. Rejected bids June 28, six 3 story concrete PARKING GARAGE, B-1, PITTSBURGH, PA. L. B. $1,425,571, est. $1,125,000. CD 6/13.

▲ **Jas. J. Stehle**, Capitol Gazette Bldg., Annapolis, Md. Contract Awarded, 1 story, 60x280 ft. Brooklyn Park Elementary SCHOOL; **Chas R. Scrivener Co., Inc.**, 240 St. Hilton St., Baltimore, Md. 1 story 60x280 ft. Fort Meade SCHOOL, ANNAPOLIS, MD. Total cost, $1,038,159. Anne Arundel Co. Bd. Educ., 207 Hanover St., Annapolis, Md. Bids June 13. CD 5/22.

SOUTH

BIDS ASKED—BUILDINGS

▲ **Ala., Anniston**—SHOP—B.A. 7/26—U. S. Eng., P. O. Box 119, Mobile 7, Ala., repair shop at Alabama Ordnance Depot, $3,000,000. Extended date. CD 6/15.

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† **N. C., Fort Bragg**—HOSPITAL—B.A. About 7/27—U. S. Eng., 308 Custom House, Wilmington, addns., alterations to Building TH-32 of Station Hospital, Inv. No. Eng. 31-075-52-1.

▲ **Ga., Fort Oglethorpe**—HOSPITAL—B.A. 7/31—Tri-County Hospital Assoc., Fort Oglethorpe, hospital. Approx. $1,000,000. Selmon T. Franklin, 421 Poplar St., Chattanooga, Tenn., archt.

Ala., Birmingham—CHURCH—B.A. About 8/1—Hunter Street Baptist Church, c/o Geo. P. Turner, archt., American Life Bldg., church, approx. $500,000. CD 8/4/50.

Tenn., Memphis—SCHOOL—B.A. 8/1—University of the South, Sewanee Bldg., two 2 story school bldgs., steel, concrete constr., air-conditioning. $800,000. Warren-Knight & Davis, Protective Life Bldg., Birmingham, Ala., archts.

† **Miss., Philadelphia**—OFFICE—B.A. 8/15—Bureau Indian Affairs, Interior Bldg., Wash. D. C., 11 room office, at Choctaw Indian Agency.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

† **James, Thompson & Wright**, South Hill, Va., Low Bidder, $485,230, construct Island Creek Pumping Station, Buggs Island Reservoir Proj., Mecklenburg Co. VIRGINIA, U. S. Eng., foot of Front St., Norfolk, Va. Bids June 19. CD 8/3/44.

† **American Asphalt Products Co.**, 60 St. S. E., Wash., D. C. $239,035, pavement and drainage repairs, Fuller Rds., NOY 28042, QUANTICO, VA. Pub. Wks. Office, Potomac River Naval Command, Naval Gun Factory, Wash. D. C. Bids June 26.

† **Thorington Constr. Co.**, 205 E. Canal St., Richmond, Va. Low Bidder, $108,500, concrete ramps, loading platforms and concrete decks, U. S. Naval Mine Depot, NOY 26142, Spec. 28240, YORKTOWN, VA. Pub. Wks. Office, Headquarters, Fifth Naval Dist., U. S. Naval Base, Norfolk, 11, Va. Bids June 28. CD 6/19.

WEST VIRGINIA—State Rd. Comn., Charleston.
R. B. Gay & Co., Roanoke, Va. Contract Awarded, $74,036, Res Bridge S-1861 and approaches, S-558 (2) Hampshire Co.; $79,916, Sedan Bridge S-1862 and approaches 0.133 mi. S-558 (3), Hampshire Co.
H. M. Coast, Inc., Stop 4, River Rd., Wheeling, W. Va., $91,351, Short Creek Bridge S1429 and approaches S614 (6), Ohio Co.
O. P. Mangus Co., Inc., Charleston, W. Va., $122,085, Big Run Bridge, S1803, F-158 (17), Wood Co. Bids June 26. Grand total $367,388. CD 6/19.
WEST VIRGINIA—State Rd. Comn., Charleston received no bids, June 26, surf. tr. 1.8 mi. Sect. RS -58 Harrison Co. Line Rd., Proj. 5358, Doddridge Co.; surf. tr. 4.25 mi. Sect. Tr 52 Road, Proj. 5870, Doddridge Co. CD 6/19.
WEST VIRGINIA—State Rd. Comn., Charleston, W. Va.
Standard Asphalt & Tar Co., 1640 4 Ave., Chrleston, W. Va., Contract Awarded, $104,627, road mix surf. Upshur County Line-Webster Springs Rd., 3279A, Webster Co.; $61,915, road surf. 12.6 mi. U. S. Rt. 33-Braxton Co. Line Road, 5247, Gilmer Co.
Smith Constr. Co., Huntington, W. Va., $158,090, traffic bound 3.781 mi. Panther-Va. State Line Road S44 (3), McDowell Co.; $390,961, traffic bound 12.007 mi. Point Pleasant Letart Rd., S-23 (1) Mason Co.
Anderson's Inc., Charleston, W. Va., $93,499, b.conc. 5188 mi. Kanawha Station, West County Line Road, 250 (5) Wood Co.
W. A. Wilson & Sons Constr. Co., St. Marys, W. Va., $172,416, traffic bound base and paving 0.601 mi. Big Run-Williamson Road, F-158 (17) Wood Co. Grant total $981,508. Bids June 26. CD 6/19.
† **C. G. Tate Constr. Co.**, Concord, N. C. Contract Awarded, $323,300, paving Manchester Rd., Eng. 31-001-1-129, FORT BRAGG, N. C. Purchasing & Contg. Office, Fort Bragg, N. C., Bids June 20.
SOUTH CAROLINA—State Hy. Dpt., Columbia, rejected bids June 19. S. C. Docket 6.1053 and 23.1067, Anderson, Greenville Counties, L. B. $147,652*** S. C. Docket 1.269, Pts. 1, 3, and 4, Abbeville Co. L. B. $72,198***S. C. Docket 10.325.1, Charleston Co. L. B. $422,335***S. C. Docket 10.355, Charleston Co., L. B. $70,332***S. C. Docket 43.275, Parts 1 and 2, Sumter Co., L. B. $92,327. CD 7/3 under LB.
† **Georgia-Southern Constr. Co.**, Macon, Ga., Low Bidder, $292,053, engine testing bldg., Warner Robins Air Force Base, MACON, GA. Purch & Contg. Office, Warner Robins Air Force Base, Macon, Ga.
The Brewer Co. of Florida, 3810 N. W. 21 St., Miami, Fla., Contract Awarded, $103,121, Contract 1, repaving 6th's roadway on Venetian Causeway MIAMI, FLA., Dade Co., Court House, Miami, Fla. CD 11/9/44.
† **James P. Cross**, 730 St. Peter St., New Iberia, La. Low Bidder, $57,067, earthen levee drainage channels, etc., on Lake St. Martin, St. Martin Parish, LOUISIANA. State, Pub. Wks. Dpt., Capitol Bldg., Baton Rouge, La. Bids June 25. CD 6/7.
ALABAMA—State Hy. Dpt., Montgomery,
Blount Brothers Constr. Co., Box 1144, Montgomery, Ala., Low Bidder, $63,880, bridge 0.037 mi. over Bear Creek on County Road 2 mi. north of Red Bay, FA-S-435 (5) Franklin Co.
Goodwyn & Murphree, Box 388, Troy, Ala., $70,682, bridges FA-S-237 (3), Macon and Russell Counties, rejected bids June 29, bridge and approaches 0.557 mi Gurley Creek on Pinson-Cleveland Road, F-442 (5) Jefferson Co. Bids June 29. CD 6/8.
ALABAMA—State Hy Dpt., Montgomery,
Georgia-Alabama Road Constr. Co., 1801 Comer Bldg., Birmingham, Ala. Low Bidder, $84,495, base and bit. 9.903 mi. U. S. 80 near Demopolis southwest to Jefferson FA-S-21 (1), Marengo Co.; $71,042, surf. 4.11 mi. county road from Florette north to Woodland Mill, SACP-186-A, Morgan Co.; $72,532, base and bit. 10.128 mi. Robjohn, Pennington-Lavaca Rd., FA-S-459 (2), Choctaw Co.
Newell Brothers Constr. Co., Hope Hall, Ala., $178,402 grading, draining 9.712 mi. part of road between Hurts and Fort Davis, FA-S-237 (3), Mason and Russell Counties; $116,919, base and bit. 17.172 mi. county roads from Ala. 98 thru Rose Hill toward Andalusia, Andalusia southeast and from Ala. 54 east to Geneva Co. Line, FA-S-516 (1), 528 (1), SACP-758-B, 7106-A and 7136-A Covington and Crenshaw Counties.
Adams & Murphy, 1227 Eustis, Fla., $69,844, base and bit. 8.273 mi. county road from Brown's X-Roads southeast to Headland Columbia Rd, SACP-7165-A Henry Co.
Hugh Steele Constr. Co. Centre Ala., $131,245, bit. 4.98 mi. Oneonta to Tait's Gap, SACP-250-A, Blount Co.
J. B. Maynard, Alexander City, Ala., $103,710, bit. 10.435 mi. from Ala. 17 south of Abanda to Welc, FAS-417 (2), Chambers Co. Bids from June 29. CD 6/8
▲† **J. A. Jones Constr. Co.**, 209 W. 4 St., Charlotte, N. C. Contract Awarded, $16,790,000. 14 groups AM, dormitories and mess halls at Keesler Air Force Base, Inv. 51-93, BILOXI, MISS. U. S. Eng., P.O. Box 1169, Mobile 7, Ala. Bids June 26.
▲† **Harrison Constr. Co.**, Maryville, Tenn. Contract Awarded, $2,202,705, paving runway, taxiway and apron at McGee Tyson Air Force Base, KNOXVILLE, TENN. U. S. Eng., 303 U. S. Courthouse, Nashville 1, Tenn. Bids June 28. CD 6/13.

BUILDINGS

LOW BIDS AND CONTRACTS

† **Thorington Constr. Co.**, 205 E. Canal St., Richmond, Va. Low Bidder, $149,846, OVER HAUL BUILDING at U. S. Naval Ammunition Depot, NOY 27098, Spec. 28936, ST. JULIENS CREEK, VA. Pub. Wks. Office, Headquarters Fifth Naval Dist., U. S. Naval Base, Norfolk 11, VA. Bids June 28. CD 6/20.
▲ **Baker & Coombs, Inc.** Demain Ave., Morgantown, W. Va., Low Bidder, $1,298,700, est. $1,250,000, 1 and 2 story, steel frame HOSPITAL, RICHWOOD, W. VA. Sacred Heart Hospital, Richwood, W. Va. Bids June 25. CD 6/7.
▲ **A. Bentley & Sons**, 201 Belmont St., Toledo, O. Contract Awarded. Approx. $1,500,000. GLASS PLANT addn. 3 story, 54x180 ft.; 1 story, 150x150 ft.; 1 story, 150x160 ft., brick, steel, concrete constr., VIENNA, W. VA. Libbey-Owens-Ford Glass Co., Nicholas Bldg., Toledo, O.
O. P. Woodcock Co., 405 W. Monroe St. Jacksonville, Fla., Contract Awarded. $416,888, SCHOOL, west of JACKSONVILLE, FLA. Bd. P. Instruction, 605 Ocean St., Jacksonville, Fla.
S. S. Jacobs Co., Hildebrandt Bldg., Jacksonville, Fla., Contract Awarded, $200,000, kraft paper conversion FACTORY, N. Pearl St., JACKSONVILLE, FLA. Kieckhefer Container Co., 7200 Westfield Ave., Pennsauken, N. J. Marsh & Saxelove, Hildebrandt Bldg., Jacksonville, Fla. archts.
Pittman Constr. Co., 2925 Franklin Ave., New Orleans, La. Low Bidder, $864,876, newspaper printing PLANT, BATON ROUGE, LA. Capitol City Press, c/o Bodman & Murrell, archts., 1175 Nicholson Dr., Baton Rouge, La. Bids July 3. CD 6/29.
New Orleans Housing Auth., California Bldg., New Orleans, La., rejected bids June 19, foundations for Calliope St. HOUSING Proj. Extension LA 1-12, NEW ORLEANS, LA. L. B. $875,922. CD 6/27, under LB.
▲ **Farnsworth & Chambers Co.**, P.O. Box 74, Houston, Tex. Contract Awarded. $2,027,187. HOSPITAL addn., NEW ORLEANS, LA. Mercy Hospital, Sisters of Mercy, 132 Annunciation St., New Orleans, La. CD 6/12, under LB.
▲ **Perrilliat-Rickey Constr. Co.**, P. O. Box 7027, New Orleans, La. Contract Awarded. $1,215,500. 4 story, 66x336 ft. HIGH SCHOOL addn., NEW ORLEANS, LA. Jesuit High School Bd., S. Carrollton Ave., New Orleans, La. CD 5/17, under LB.
† **R. P. Farnsworth Co.**, Inc., box 850, New Orleans, La., Contract Awarded, $395,000, addnl. facilities at Mickaud Ordnance Plant, ENGINE TEST CELL BLDG., fuel oil storage pump house, etc., NEW ORLEANS, LA. U. S. Eng., 606 Santa Fe Bldg., Galveston, Tex.
† **Struck Constr. Co.**, 147 N. Clay St., Louisville, Ky., Contract Awarded, $750,000, WAREHOUSE, for Lexington Signal Depot, LEXINGTON, KY. U. S. Eng., 830 W. Broadway, Louisville, Ky. Bids June 27, awarded July 2.
▲† **Struck Constr. Co.**, 147 N. Clay St., Louisville, Ky. Contract Awarded. $1,157,000. signal repair SHOP at Lexington Signal Depot, LEXINGTON, KY. U. S. Eng., 830 W. Broadway, Louisville, Ky. CD 4/17.
Cantrell Constr. Co., Jackson, Tenn., Low Bidder, $469,000. Lincoln SCHOOL, JACKSONVILLE, TENN. City, Jackson, Tenn. Bids June 22. CD 6/1.
† **V. L. Nicholson Co.**, 611 S. Central St., Knoxville, Tenn. Contract Awarded. $258,802. TEST FACILITIES Bldg. 22. Inv. No. 401-51-29A, OAK RIDGE, TENN. U. S. Atomic Energy Comm., P. O. Box E, Attention, R. J. Dunbar, Engineering and Constr. Div., Oak Ridge, Tenn. Bids June 27. CD 5/31.

MIDDLE WEST

BIDS ASKED—HEAVY CONSTRUCTION

▲ **Wis., Milwaukee**—B.A. 7/30—City, 80 ft. span concrete piers, steel bascule type, 48 ft. roadway two 65 ft. sidewalks, Juneau Ave. Bridge, $1,300,000.

Plans deposit $10. Lloyd D. Knapp, city engr. CD 4/24/50.

BIDS ASKED—BUILDINGS

Ill., Brookfield—SCHOOL—B.A. 7/24—School Dist. 103, 41 and Joliet Ave., 1 story, steel, face brick Lincoln School, Shields Ave. at Custer St., $575,000 Louis Mavin, 228 N. LaSalle St., Chicago, Zone 1, engr. Louis N. Balluff, 35 E. Wacker Dr., Chicago, Zone 1, archt. CD 5/31.

O., Whitehouse — SCHOOL — B.A. 7/31 — Bd. Educ., Waterville-Whitehouse-Monclova School Dist., Walter J. Grimm, clk., Waterville, high school, Finzel Rd. Plans deposit $10. W. Howard Manor, Holland Theater Bldg., Bellefontaine, archt.

▲ O., Toledo—JUVENILE COURT—B. A. 8/1—Comrs., Lucas Co., Court House. Child Study Institute and Juvenile Court Bldg., Michigan St. $1,500,000. Beltman, Gillett & Richards, 518 Jefferson St., archts. CD 6/5.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

OHIO—State Hy. Dpt., T. J. Kauer, dir., Columbus, Zone 15, rejected bids June 19, resurf., Type T-35, S. R. 4, Butler Co., $37,120; resurf., Type T-35, S. R. 7, Jefferson Co., $72,800; Type T-35 and structure of concrete, U. S. R. 40, Montgomery Co., $481,000; resurf., Type T-35, U. S. R. 35, Ross Co., $11,340; resurf. Type T-35, U. S. R. 127, Preble Co., $56,200; resurf., Type T-35, U. S. R. 22, Pickaway Co., $37,500; resurf, Type T-35, S. R. 77, Muskingum Co., $65,600; resurf, Type T-35, U. S. R. 22, Warren Co., $83,800; resurf, Type T-32, Pts. Nos. 1 to 4 (incl.) C. R. No. 10, 28 and 17, Jackson Co., $91,800; cancelled bids to have been opened June 19, resurf., Type T-35, U. S. R. 224, Hancock Co. Bids June 19. CD 6/7.

▲ OHIO—State Hy. Dpt., T. J. Kauer, dir., Columbus, Zone 15.

Ohio Road Imprvt. Co., Chamber Commerce Bldg., Columbus, O. Contract Awarded, $65,769, est. $71,550, resurf. Type T-35, S. R. 18, Lorain and Medina Counties, $69,874, est. $78,800; resurf., Type T-35, U. S. R. 6, Erie Co., $62,146, est. $81,570; resurf. Type T-35, S. R. 4 Seneca Co.

Southern Quarries & Contracting Div. of New York Coal Sales Co., 150 E. Broad St., Columbus, O., $91,953, est. $94,700; resurf., Type T-35, S. R. 124, Jackson and Pike Counties.

John R. Jurgensen, P. O. Box 254, Newtown, O., $60,564, est. $59,150, resurf., Type T-35, S. R. 4, Hamilton Co.

Daniel Davis, 24150 Lyman Blvd., Cleveland, O., $88,337, est. $109,150, resurf., Type T-35, U. S. R. 62, Fayette Co.

Fenton Constr. Co., P. O. Box 310, Ashland, O., $76,235, est. $72,330, resurf., Type T-35, U. S. R. 33, Athens and Hocking Counties; $113,085, est. $105,950, resurf. Type T-35, U. S. R. 36, 127 Parts 1 and 2, Darke and Preble Counties, $93,309, est. $119,700, resurf., Type T-35, S. R. 142, Madison Co.

The Clinton Constr. Co., 112 N. South St., Wilmington, O., $87,427, est. $82,460, resurf., Type T-35, U. S. R. 68, Clinton Co.

Marshal C. Rardin, 1545 Tonawanda Ave., Akron, O., $107,625, est. $103,790, Type T-10, C. R. Nos. 2 and 55, Harrison Co.

C. E. Edgington & Son, 1220 S. Main St., Findlay, O., $405,776, est. $452,400, grading, drainage, paving, Type T-35, concrete bridge, U. S. R. 42, Madison Co. Grand total $1,322,100. Bids June 19, awarded June 19. CD 6/7.

Chicago Bridge & Iron Co., 322 S. Michigan Ave., Chicago, Ill. Contract Awarded, est. $150,000 tank and tower; Green & Sons, Vincennes, Ind., distr. system, water tank and distr. sys. EDGEWOOD, IND. Town, R. R. 8, Anderson, Ind. Bids May 31. CD 5/25.

▲ John Doherty Co., 7956 S. Vernon St., Chicago, 19, Ill. Low Bidder, $1,265,465, Central South Side Sewerage System, Emerald and Wolfoot Aves., CHICAGO, ILL., City, City Hall, Chicago, Ill. CD 3/1.

▲† M. J. Boyle, 2480 Elston St., Chicago, 47, Ill., and J. M. Corbett, 2501 Salt St., Chicago, Ill. Low Bidder, $1,813,000, paving runways, airplane parking apron, alert apron, O'Hare Field, CHICAGO, ILL. Dpt. Air Force, Pentagon Bldg., Wash. D. C.

† S. N. Nielsen Co., 3054 W. Augusta St., Chicago, Ill. Contract Awarded, $700,000, readiness bldg., alert hangar and outside utilities, O'Hare Field, Eng. 1-32-51-44, CHICAGO, ILL., U. S. Eng., 502 Merchandise Mart, Chicago 54, Ill. Bids June 19. CD 6/12.

City Wide Builders, 5400 Elston St., Chicago 30, Ill. Low Bidder, $480,000, aviation fuel storage and distr. sys., GLENVIEW, ILL., Dpt. Navy, Glenview Naval Air Station, Glenview, Ill. Bids June 26.

† Ashworth & Sons, 3601 Alabama Ave., St. Luis Park, Minneapolis, Minn. Low Bidder, $192,095, wearing surf. on bit. road and seal coat, Inv. Eng. 41-001-51-18, BARABOO, WIS. U. S. Eng., 428 Federal Bldg., Milwaukee, Wis. Bids June 18.

Badger Constr. Co., 229 E. Wisconsin Ave., Milwaukee 2, Wis. Contract Awarded, $96,670, asph. paving N. Sherman Blvd.; Stack Constr. Co., 3303 S. 20 St., Milwaukee 15, Wis., $113,887, paving W. Burleigh St., MILWAUKEE, WIS. City, Milwaukee, Wis. Bids June 29, awarded July 2.

John C. Westphal, 12274 Coyle St., Detroit, Mich. Contract Awarded, Approx. $60,000, 2 one span bridges over Milk River, GROSSE POINTE WOODS, MICH. Grosse Pointe Woods, Mich. Pate & Hirn, 532 Michigan Bldg., Detroit, Mich., engrs. Bids June 20.

J. W. Burke Co., 1032 Fisher Bldg., Detroit, Mich. Contract Awarded, $315,800, underground utilities, for intensive treatment and admission units, tunnel and piping sewers, etc. NORTHVILLE, MICH. State, A. N. Langius, dir., State Bldg. Dept., Lansing, Mich. Bids June 20. CD 5/24.

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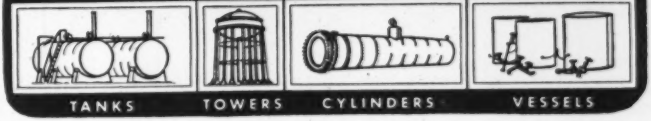

TANKS TOWERS CYLINDERS VESSELS

BUILDINGS

LOW BIDS AND CONTRACTS

† **Casey & Case Foundation Co.**, Detroit, Mich. Contract Awarded, $375,000, contr. foundation piling at new U. S. Army Finance Center Bldg., FORT BENJAMIN HARRISON, IND. U. S. Eng., 520 Merchandise Mart, Chicago 54, Ill. CD 2/12.

Gateway Eng. Co., 3233 W. Grand St., Chicago 51, Ill. Contract Awarded, $360,000, 40,000 sq. ft. WAREHOUSE, 315 Ashland St., CHICAGO, ILL. Leviton Mfg. Co., 111 N. Canal St., Chicago 6, Ill. Awarded June 27.

B. W. Constr. Co., 334 La Salle St., Chicago 3, Ill. Contract Awarded, $300,000, FACTORY addn., CHICAGO, ILL. Scaky Bros. Inc., 4915 W. 67 St., Chicago 38, Ill. John Cromelin, 6455 S. Central St., Chicago 3, Ill., archt. Awarded June 19.

Alzina Constr. Co., 700 MacArthur Dr., Springfield, Ill. Contract Awarded, $612,500, 2 story, 14 APARTMENTS, CLINTON, ILL. De Witt Co. Housing Auth., Clinton, Ill. Linkton & Ziegle, 1100 Main St., Pekin, Ill., archts. Awarded June 25.

Henry Ericsson Co., 228 N. La Salle St., Chicago 1, Ill. Contract Awarded, Approx. $550,000, 2 story, 54,000 sq. ft., concrete, brick OFFICE, DES PLAINES, ILL. Universal Oil Products Co., 310 S. Michigan Ave., Chicago 4, Ill. Olsen & Urbain, 5 S. Wabash St., Chicago 3, Ill., archts. Awarded June 20. CD 10/24/50, under Industrial Bldgs.

Henry R. Schaefer Co., 1326 W. 3 St., Davenport, Ia. Low Bidder, $780,000, steel, brick, concrete HIGH SCHOOL addn., EAST MOLINE, ILL. United Twp. School Dist. 30, 922 20 Ave., East Moline, Ill. Wm. Stohr, Safety Bldg., Rock Island, Ill., archt.

▲† **S. N. Nielson Co.**, 3059 Augusta Blvd., Chicago, 12, Ill. Contract Awarded, $1,049,000, research LABORATORY, Argonne National Laboratory, LEMONT, ILL. Atomic Energy Comn., 1901 Constitution Ave. N.W., Wash. 25, D. C. Bids June 26, awarded June 27. CD 7/6, under LB.

Oscar Mayer Co., 910 Mayer St., Madison, Wis., cancelled bids to have been opened Mar. 21, meat packing PLANT, 43 and Lincoln Sts., MILWAUKEE, WIS. Project abandoned. CD 3/16.

W. W. Oeffein, Inc., 5345 N. Hopkins St., Milwaukee 9, Wis. Contract Awarded, 1 story, 90x176 ft., concrete block, steel FACTORY, WAUWATOSA, WIS. Lakefield Mfg. Co., 5312 E. Electric Ave., West Allis 14, Wis. Fridstein Eng. Co., 228 N. La Salle St., Chicago, Ill., engrs.

Krieghoff Co., 6661 French St., Detroit, Mich. Contract Awarded, $300,000, 2 story, bsmt., brick, steel EDUCATIONAL CENTER, HAMTRAMCK, MICH. St. Florian Roman Catholic Parish, Hamtramck, Mich. Bids May 7. CD 4/30.

WEST OF MISSISSIPPI

BIDS ASKED—HEAVY CONSTRUCTION

▲† **Okla., Oklahoma City**—JET ENGINE TEST CELLS etc.—B.A. 7/28—Dpt. Air Force, The Pentagon, Wash., D. C., jet engine test cells, boiler house, steam tunnels, underground paving, electrical, sewers, at Tinker Air Force Base. $10,000,000. Graham, Anderson, Probst & White, 80 E. Jackson St., Chicago 4, Ill., archts.

† **Tex., Roma**—B.A. 7/31—International Boundary & Water Comn., U. S. A. and Mexico, U. S. A. Sect. Box 1859, El Paso, Inv. No. D-4539, furnishing, installing fixed-wheel gates for intake structures at Falcon Dam and power plant project. Approx. $500,000. CD 1/6/49.

BIDS ASKED—BUILDINGS

† **Ark., Little Rock**—PLANT REPAIRS—B.A. 7/24—U. S. Eng., 30o Broadway, building repairs at Maumelle Ordnance Plant, near here, ENG 03-050-52-2.

Iowa—STORAGE—B.A. 7/24—State Hy Comn., Ames. 3 stall frame storage bldg. for maintenance equip. at Clarksville 82-241, Butler Co.; 3 stall storage bldg. for maintenance equip. at Cascade, 82-242, Dubuque Co.; 4 stall tile adn. to maintenance bldg. in Marshalltown, 81-1, Marshall Co.; 3 stall frame storage bldg. for maintenance equip. at Nichols, 82-243, Muscatine Co. Under $60,000 each. F. R. White, ch. engr.

Minn., St. Paul Park—SCHOOL—B.A. 7/24—Bd. Educ., Independent School Dist. 102, Washington Co., M. Oltman, clk., school. $500,000. Plans deposit $20. Toltz, King & Day, 1509 Pioneer Bldg., St. Paul, archts. CD 2/23.

N. M., Albuquerque—CHEMISTRY, etc.—B.A. 7/24—Bd. Regents University of New Mexico, University Hill, pre-cast hollow concrete blocks chemistry bldg. and biology bldg. Approx. $300,000. Meem, Zehner, Holien & Assoc., Box 628, Santa Fe, archts.

† **N. M., Los Alamos**—PHYSICS—B.A. 7/30—U. S. Atomic Energy Comn., Los Alamos, N. M., physics bldg. Project N. TA-3, Phase A. Inv. 291-52-1, $550,000-$650,000. Plans deposit $50.

Neb., Sidney—HOUSING—B.A. 8/2—U. S. Eng., 1709 Jackson St., Omaha, construct, manage, finance 100 unit housing, M. J. Lahr, Standard Oil Bldg., Omaha, archt. CD 1/8.

SOON LETS CONTRACT—BUILDINGS

Neb., Omaha—WAREHOUSE—Independent Truckers, Inc., 115 N. 12 St., soon lets contract terminal warehouse, $80,000. J. E. Loftus, Omaha Natl. Bank Bldg., archt. CD 2/2.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

Hennepin Co., R. S. Fitzimmons, aud. and **Village of St. Louis Park**, J. Justad, clk., Minneapolis, Minn. rejected bids June 19, grading, paving, Proj. 5012, State Rd. 5, being Minnetonka Blvd. in village from Joppa Ave. to Trunk Hy. 100, MINNEAPOLIS, MINN. L. B. $88,591, CD 6/28, under LB.

Christensen Bros., 3011 Virginia St., Sioux City, Ia., Contract Awarded, $76,692, bridges and culverts PRINGHAR, IA. O'Brien Co., Pringhar, Ia. Bids June 14.

M. T. & J. T. McGuire, Algona, Ia. Contract Awarded, $133,851, grading, and surfacing, PRINGHAR, IA. O'Brien Co.,-Pringhar, Ia. Bids June 14.

C. C. Hendrickson Co., 1441 30 St., Des Moines, Ia., Contract Awarded, $77,247, Sect. 1, paving, WEST DES MOINES, IA. City, West Des Moines, Ia. CD 4/20.

† **Cook Constr. Co.**, Hy. 80 West, Jackson, Miss. Contract Awarded, $372,000, approx. 800,000 cu. yd. earthwork in new levee and 170,000 cu. yd. excav. in ditch New Madrid Co., Serial No. CIVENG 40-041-51-140 MISSOURI. U. S. Eng., P. O. Box 97, Memphis, 1, Tenn. Bids June 14.

Purtzer & Dutton, Norton, Kan. Contract Awarded, $75,691. sewage plant, ALMA, NEB. City, Alma, Neb. Bids June 15. Harold Hoskins & Assoc., 231 N. 11 St., Lincoln, Neb., engrs.

OKLAHOMA—Oklahoma Turnpike Auth., Capitol, 5, Oklahoma City, Okla.,

S. E. Evans, 2914 North "O" St., Fort Smith, Ark. Contract Awarded, $476,821, est. $507,659, roadbed 5.996 mi. for Turnpike Contr. No. 16, Lincoln Co.

M. E. Gillioz, Monett, Mo., $410,770, est. $442,680, roadbed 3.982 mi. for Turnpike, Contr. No. 15, Lincoln Co. Awarded July 2. CD 6/22/50.

† **Broome Electric Constr. Co.**, Amarillo, Tex. Low Bidder, $163,860, direct current lines from power plant to various plant bldgs., Phase 1, Inv. No. Eng 34-066-51-52, Amarillo Air Force Base, AMARILLO, TEX. U. S. Eng., Box 61, Tulsa 2, Okla.

† **Southwest General Constr. Co.**, 426 Reserve Loan Life Bldg., Dallas, Tex. Low Bidder, $156,137, airfield lighting, Inv. No. Eng 41-243-51-49, BRYAN, TEX. U. S. Eng., 606 Santa Fe Bldg., Galveston, Tex. Bids 6/30. CD 3/21, under LB.

† **Southwest General Constr. Co.**, 426 Reserve Loan Loan Life Bldg., Dallas, Tex. Contract Awarded, $506,290, 4.000 lin. ft., rein.con. runway extens.; $526,813, taxiways, 180,000 sq. yd. connected paving rein.-con. type, Inv. No. Eng 41-243-51-49, BRYAN, TEX. U. S. Eng., 606 Santa Fe Bldg., Galveston, Tex., Bids June 30. CD 7/6, under LB.

† **Joe R. Turner**, 6310 Long Dr., Houston, Tex. Contract Awarded, $111,211, est. $285,000. steam distr. pipe sys. CORPUS CHRISTI, TEX., U. S. Govt., Dpt. Navy, Naval Station, Corpus Christi, Tex. CD 6/28, under LB.

† **J. M. Dellinger, Inc., Texas Bitulithic Co. and Dean Word**, 2425 Leopard St., Corpus Christi, Tex., $664,090. rebuilding runways, South Field, Naval Auxiliary Air Statin, NOY 28970, KINGSVILLE, TEX. U. S. Govt., Officer in Charge Construction, Naval Air Station, Corpus Christi, Tex. Bids June 25. CD 7/5, under LB.

† **T. H. Lee**, 401 N. Tancahua St., Corpus Christi, Tex. Low Bidder, $128,286, est. $210,000. 18,300 lin. ft. 15- to 24-in. vitr. clay and c.i. outfall sewer, Inv. No. Eng 41-243-51-97, LACKLAND AIR BASE, (Br. San Antonio) TEX. U. S. Eng., 606 Santa Fe Bldg., Galveston, Tex. Bids June 30. CD 6/20.

† **V. Prassel Constr. Co., Inc.**, Box 526, San Antonio, Tex. Contract Awarded, $598,000, refueling and storage facilities for Randolph Air Force Base, Inv. Eng 41-243-51-88, RANDOLPH FIELD, TEX. U. S. Eng., 606 Santa Fe Bldg., Galveston, Tex. Bids June 21, awarded July 2. CD 6/27, under LB.

† **H. H. Via**, 770 Cerrillos Rd., Santa Fe, N. M., Low Bidder. Approx. $100,000-$125,000. acid sewerage sys., 5,600 ft. 6 in. pipe gravity main, inverted syphon, approx. 1,500 ft. 4 in. mechanical joint c.i. pipe and concrete holding tank, Inv. No. 291-51-115, LOS ALAMOS, N. M., U. S. Atomic Energy Comn., Los Alamos, N. M. Bids June 29. CD 6/18.

† **Mesa Gardens**, 1905 Kiva Rd., Santa Fe, N. M. Low Bidder. $195,000, est. $326,329. erosion control, Inv. No. 291-52-120, LOS ALAMOS, N. M. U. S. Atomic Energy Comn., Los Alamos, N. M. Bids June 28. CD 6/18.

BUILDINGS

LOW BIDS AND CONTRACTS

A. Hedenberg & Co., 4623 E. Superior St., Duluth, Minn. Contract Awarded, $857,800. general constr. 2 story, 189x269 ft., PHYSICAL EDUCATION BLDG., at Duluth Branch, DOULUTH FIELD, Minn. Regents of University of Minnesota, 323 Administration Bldg., Main Campus, Minneapolis, Minn. CD 6/13, under LB.

▲ **Arthur Bros. Inc.**, Kingsville, Tex., Contract Awarded. Approx. $1,350,000. CHEMICAL PLANT addn., BISHOP, TEX. Celanese Corp. of America, Bishop, Tex., A. C. Ledevet, c/o owner, engr., Awarded July 2.

▲ **A. J. Rife**, 2608 Inwood St., Dallas, Tex., Contract Awarded, $2,713,995. 426 low cost DWELLING units, Tex 9-9, DALLAS, TEX. Dallas Housing Auth., 2525 Lucas Dr., Dallas, Tex., Bids June 22, awarded July 5. CD 6/28, under LB.

Busboom & Rauh, 6910 Forest Park Rd., Dallas, Tex., Contract Awarded, $726,523. 102 DWELLING units in 14 bldgs., Tex. 9-7, DALLAS, TEX. Dallas Housing Auth., 2525 Lucas Dr., Dallas, Tex. Bids June 21, awarded July 6. CD 6/29, under LB.

▲ **J. J. Fritch Constr. Co.**, 6834 Harry Hines Blvd., Dallas, Tex. Contract Awarded, $1,886,700. 42 bldgs., 294 DWELLING units, Tex. 9-8, Canaan St. Housing, DALLAS, TEX. Dallas Housing Auth., 2525 Lucas Dr., Dallas, Tex., Bids June 22. CD 7/25, under LB.

Catalytic Constr. Co., 1528 Walnut St., Phila., Pa. Contract Awarded, design and construct Alkylation PLANT, EL PASO, TEX. Standard Oil Co. of Texas, Womble Bldg., El Paso, Tex., M. W. Kellogg Co., 225 Broadway, New York 7, N. Y., engr. (Correction —contractor). CD 6/21, under CA.

† **Quincy Lee Constr. Co.**, 211 W. Olmos Dr., San Antonio, Tex. Contract Awarded, $577,360. rehabilitation, exten. facilities for HOSPITAL, Inv. No. Eng 41-243-51-99, FORT HOOD, TEX. U. S. Eng., 606 Santa Fe Bldg., Galveston, Tex. Bids June 30. CD 7/6, under LB.

▲ **Hubbard Constr. Co.**, 1507 Delano St., Houston, Tex. Contract Awarded, $2,615,000. 348 DWELLING units, Tex. 5-6, HOUSTON, TEX. Houston Housing Auth., c/o San Felipe Courts, Houston, Tex. Bids June 23. CD 7/3, under LB.

Lubbock Cotton Oil Mill, Lubbock, Tex. Own Forces. Approx. $100,000. oil MILL addn., LUBBOCK, TEX. CD 5/16.

Plains Co-operative Oil Mill, Lubbock, Tex. Own Forces. $90,000. OIL MILL, SEED HOUSE unit, LUBBOCK, TEX. CD 3/30.

Forgy Constr. Co., Box 6421, Alamo Heights Station, San Antonio, Tex. Low Bidder, $116,672. engineering PAINT SHOP, for San Antonio General Depot, Inv. No. Eng 41-243-51-82, SAN ANTONIO, TEX. U. S. Eng., 606 Santa Fe Bldg., Galveston, Tex. Bids June 28. CD 6/13.

▲ **Van Cleve Constr. Co.**, 5616 Telephone Rd., Houston, Tex., Low Bidder, $1,014,878. est. $650,000. 55,112 sq ft. LAUNDRY PLANT, 11,377 sq. ft. GYMNASIUM, 1 story VAULT Bldg., masonry, steel constr. SPRING BRANCH, TEX., Spring Branch Independent School Dist., c/o H. M. Landrum, 9130 Long Point Rd., Houston, Tex. Bids June 26. Wylie W. Vale, 517 W. Gray St., Houston, Tex., archt. CD 4/27.

▲† **Campbell & Kay**, Box 826, Tyler, Tex., Contract Awarded. $1,074,467. for Lots 1 and 2 for Upper Atmosphere RESEARCH STATION, Serial No. Eng 29-005-51-55, SACRAMENTO PEAK, N. M. U. S. Eng., Box 1538, Albuquerque, N. M. CD 7/2, under LB.

FAR WEST

BIDS ASKED—BUILDINGS

Calif., Oakland—B.A. 7/27—East Bay Municipal Utility Dist., 512 16 St., Albany Pumping Plant, Sewer, under SD-71, Albany. CD 11/13/47.

† **Calif., Sacramento**—PETROLEUM STORAGE DEPOT—B.A. 7/29—U. S. Eng., McClellan Air Force Base, Sacramento, rehabilitate Petroleum Storage Depot 2, fueling facilities IFB 51-286. CD 4/5.

† **Oregon**—B.A. 8/8—U. S. Eng., 628 Pittock Block, Portland, Zone 5, three 52,500 h.p. hydraulic turbines and appurtenances for Lookout Point Reservoir, Serial No. CIVENG 35-026-51-310.

† **Washington**—B.A. 8/9—Bureau Reclamation, Dpt. Interior, P. O. Box 1377, Federal Bldg., Yakima, earthwork, pipe line and structures for Grandview Drain No. 1, Roza Div. Yakima Proj., about 2 mi. east of Grandview, Spec. 100C-131.

BIDS ASKED—BUILDINGS

Calif., Redwood City—SCHOOL—B.A. 7/31—Redwood City Elementary School Dist., Redwood City, Garfield Elementary School. Plans deposit $25. Arthur O. Janssen & Wm. H. Daseking, 1616 El Camino Real, Menlo Park, Calif., archts.

▲ **Wash., Buckley**—SCHOOL—B. A. 7/31—State Dpt. P. Institutions, Olympia, four 2 story bsmnt., rein.-con. ward bldgs. at Ranier State School, Units G-3 and 4, B-3 and 4, $2,250,000. Plans deposit $50. Naramore, Bain & Brady & Johanson, 904 7 Ave., Seattle, Wash., archts.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **Guy F. Atkinson & Ostrander Constr. Co.**, 10 W. Orange Ave. S., San Francisco, Calif. Contract Awarded. $6,659,854. Structural work required in completion of Rock Island Dam and power house, WENATCHEE, WASH. Chelan Co. Public Utility Dist., c/o Stone & Webster Engr. Corp., 707 Lloyd Bldg., Seattle 1, Wash., Bids June 30. CD 6/7.

IDAHO—State Hy. Dpt., Boise.

Burggraf Constr. Co., Idaho Falls, Idaho. Low Bidder, $137,488, reconditioning and surf. 19.133 mi. U. S. 20 Butte Co.

Asbett Constr. Co., Twin Falls, Idaho, $65,774, reconditioning roadbed, surf. 7.205 mi. State Hy. 34 Caribou Co.

Le Grand Johnson, Logan, Utah, $121,210, reconditioning roadbed, surf. 9.453 mi. Hy. Caribou Co. Bids June 29.

IDAHO—State Hy. Dpt., Boise,

C. B. Lauch Constr. Co., 435 Ada St., Boise, Idaho, Low Bidder. $66,378, constr. 404.5 ft. timber bridge and approaches over Boise River, Canyon Co.

† **P. Wks. Officer**, 13th Naval Dist., 1611 W. Wheeler St., Seattle, Wash. rejected bids reconditioning pon-

(Continued on page 112)

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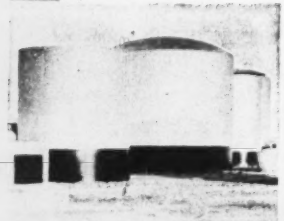

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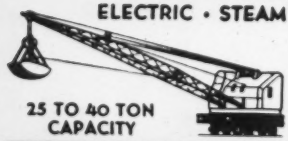

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CAPACITY

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(Continued from page 110)

toons and pontoon camels at Naval Station, Spec. 26357, TACOMA, WASH. Project abandoned. (Correction Status). CD 6/13, under CA.

† **U. S. Eng.**, Pittock Block, Portland, Ore., received no bids Mar. 29, one two-leaf lock gate, Willamette Falls locks, CIVENG 35-026-51-212, Clackamas Co., OREGON. CD 3/9.

† **H. Earl Parker, Inc.**, Marysville, Calif. Low Bidder. $257,880, levee setback, bank protection along Sacramento River, Steamboat, Sutter, etc., near Rio Vista, Spec. 1515, Solano Co., CALIFORNIA, U. S. Eng., Wright Bldg., Sacramento, Calif. Bids June 22. CD 7/3, under LB.

CALIFORNIA—State Div. Hys., 120 S. Spring St., Los Angeles.

Cox Bros. Constr. Co., Box 36, Stanton, Calif., Contract Awarded. $637,345, roadwork, etc. 3.2 mi. 3 rein.-con. bridges, etc., between San Marcos Creek and Carlsbad, San Diego Co. Bids June 21, awarded June 29. CD 7/3, under LB.

▲ CALIFORNIA—State Div. Hys., P. Wks. Bldg., Sacramento.

Frederickson & Watson Constr. Co., 873 31 Ave., Oakland Calif., Low Bidder, $1,374,048, roadway, bridges, etc. 4.6 mi. Hopyard Rd. and 2.51 mi. west of Dublin, Alameda Co.

Clements & Co., P. O. Box 277, Hayward, Calif., $378,862, grading, surf., 4 rein.-con. bridges 3 mi. between Arbuckle and 3 mi. north, Colusa Co.

Harms Bros. & C. M. Syar, 5261 Stockton Blvd., Sacramento, Calif., $236,903, plant mix, surf. etc. 7.2 mi. between Lake Co. line and 1.5 mi. north of Calistoga, Napa Co.; $290,976, resurf. 1.3 mi. roadway between Flycaster's and Myrtle, Nevada Co.

Chittenden & Chittenden and B. S. McElderry, P. O. Box 246, Auburn, Calif., $193,288, grading, surf., rein.-con. bridge 0.6 mi. at Indian Creek Bridge near Crescent Mills, Plumas Co.

Valley Paving & Constr. Co., P. O. Box 6, Pismo Beach, Calif. $142,745, grading, surf. 2.3 mi. 13 mi. west of Atascadero, San Louis Obispo Co.

J. Henry Harris, 2657 9 St., Berkeley, Calif., $199,183 grading, surf. 1.9 mi. 6 mi. east of North Yuga River Bridge and 4.6 mi. west of Sierra City, Sierra Co.

Huntington Bros., 9 Lansdale Ave., San Anselmo, Calif., $94,494, grading, surf. 2.7 mi. between Stewarts Point and Qualala, Sonoma Co.

received no bids, grading, rein.-con. bridge 1.1 mi. across Silver Creek near Woodfords; etc. and near Markleeville, Alpine Co. CD 6/6.

† **C. M. Syar**, Box 1431, Vallejo, Calif. Low Bidder, $77,785, rehabilitation of operational roadways at arsenal. Inv. 04-519-51-43, BENICIA, CALIFF. Benicia Arsenal Dpt. Army, Benicia, Calif.

† **Manning & Whitaker, Inc.**, 375 9 St., San Francisco, Calif., Low Bidder, $237,068, increase capacity of power distr. sys. at arsenal, Inv. 51-22, BENICIA, CALIF. Purch & Contg. Office, Benicia, Calif. Bids June 27.

† **McDonald Bros**, 6014 Adams Blvd., Los Angeles, Calif., Contract Awarded, $378,683, parachute experimental facilities at N. A. A. S. Spec. 26909, EL CENTRO, CALIF. Dpt. Navy, Eleventh Dist., San Diego, Calif. Bids June 12, awarded June 28.

† **Purch & Contg. Office**, Dpt. Army, Fort Mason, Calif., rejected bids, repair of fender system on Docks, 12, 3 3 and 4, Inv. No. 04-219-51-8, FORT MASON, CALIF.

† **Matich Bros.**, P. O. Box 390, Colton, Calif. Contract Awarded. $69,441, repaving motor pool areas, warehouse area, etc. 04-253-5169, GEORGE AIR FORCE BASE, CALIF. Purch & Contg. Office, George Air Force Base, Calif. Awarded June 26.

† **Stucton**, 962 N. La Cienega St., Los Angeles, Calif. Low Bidder. $453,314, alert hangar, etc, Eng. 101 GEORGE AIR FORCE BASE, CALIF. U. S. Eng., 751 S. Figueroa St., Los Angeles, Calif.

† **S. M. McGaw**, Elks Bldg., Stockton, Calif. Low Bidder, $189,345, rehabilitate railroad at Tracy Annex, Sharpe General Depot, Inv. 04-513-51-62, LATHROP, CALIF. Purch & Contg. office, Sharpe General Depot, Lathrop, Calif. Bids June 27.

Warren Southwest Inc., 20900 S. Normandie Ave., Los Angeles, Calif. Contract Awarded, $61,559, repaving streets in connection with Joint Outfall "F" Trunk Sewer, Units 2 and 3, Long Beach, LOS ANGELES, CALIF. Los Angeles Co. Sanitation Dist. 2,2020 Beverley Blvd., Los Angeles, Calif.

† **E. F. Graudy**, Box 401, Laguna Beach, Calif., Contract Awarded, $107,698, addnl. sanitary facilities, Camp Pendleton, Spec. 26904, OCEANSIDE, CALIF. Eleventh Naval Dist., San Diego, Calif. Bids June 26.

A. Teichert & Son, Inc., 1848 37 St. Sacramento, Calif. Low Bidder, $157,166, grading, drainage, etc. in Colonial Village NO. 2, SACRAMENTO, CALIF. City, City Hall, Sacramento, Calif. Bids June 28.

† **Pacific Electric**, 743 Columbia St., San Diego, Calif., Contract Awarded, $112,544, expansion electrical facilities at Naval Training Center, Spec. 29698, SAN DIEGO, CALIF. Dpt. Navy, Eleventh Naval Dist., San Diego, Calif.

† **B. L. Guisto**, 40 Ringold St., San Francisco, Calif., Low Bidder, $217,900, addnl. facilities for Bldg. 251B for Radiological Defence Laboratory, San Francisco Naval Shipyards, NOY 24498, Spec. 26783, SAN FRANCISCO, CALIF. Twelfth Naval Dist., Federal Office Bldg., San Francisco, Calif. CD 4/23, under Public Buildings.

BUILDINGS

LOW BIDS AND CONTRACTS

John H. Mickelson Co., Logan, Utah, Contract Awarded, $399,000. HIGH SCHOOL, WELLS, NEV. Elko Co. Court House, Elko, Nev. CD 12/11/50.

Carrico & Gautier, 365 Ocean Ave., San Francisco, Calif. Low Bidder, $699,300, Notre Dame COLLEGE, BELMONT, CALIF. Sisters of Notre Dame, 300 Fulton St., Redwood City, Calif. Bids June 27. CD 6/12.

Robert Douglas, Fortuna, Calif. Contract Awarded, $416,224, Fortuna Union High School GYMNASIUM, FORTUNA, CALIF. Fortuna Union High School Dist., Fortuna, Calif. Bids June 25. CD 6/14.

▲ **Midstate Constr. Co.**, 347 Clay St., San Francisco, Calif. Contract Awarded, $573,333, 78 housing units Cal 6-5***L. H. Hansen & Sons, 313 Palm Ave., Fresno, Calif., $532,500, 72 HOUSING units, CA1 6-6***Harris Constr. Co., P.O. Box 109, Fresno, Calif., $518,433, 74—dwelling units, Ca1 6-4, FRESNO, CALIF. Housing Auth of Fresno, 2511 Vassar Terrace, Fresno, Calif. Grand total, $1,624,266 Bids June 21, awarded June 29. CD 7/3, under LB.

Zabellos Bros., 850 Soto St., Hayward, Calif. Contract Awarded, $503,304, Meek Junior High SCHOOL, Winton Ave., HAYWARD, CALIF. Hayward Union High School Dist. 22300 Foothill Blvd., Oakland, Calif. Bids June 7, awarded June 29. CD 6/4, under LB.

† **Jesse B. Worthington, C. B. Hewitt, Helge Huttgren**, 2805 University Ave., San Diego, Calif. Contract Awarded, $390,000, reconditioning bldgs. at Marine Recruit Depot, Spec. 28609, SAN DIEGO, CALIF. Eleventh Dist., San Diego, Calif. Awarded June 28. CD 1/8.

S. J. Amoroso Constr. Co., 2300 Oakdale Ave., San Francisco, Calif. Low Bidder, $434,434, genecal constr., ADMINISTRATION BLDG., San Francisco State College, SAN FRANCISCO, CALIF. State Div. Architecture, P. Wks. Bldg., Sacramento, Calif. Eids June 26. CD 5/31.

Lew Jones Constr. Co., 1535 S. 10 St., San Jose, Calif., Contracct Awarded, $490,432, BAKERY, S 7 and Phelan Sts., SAN JOSE, CALIF. Langendorf United Bakeries, Inc., 1160 McAllister St., San Francisco, Calif. Awarded July 2. CD 2/13.

Nielsen & Nielsen, 1185 Coolidge Ave, San Jose, Calif., Contract Awarded, $911,646, general contract, MUSIC BLDG. at San Jose State College, SAN JOSE, CALIF. State Div. Architecture, P. Wks. Bldg., Sacramento, Calif. Bids June 5, awarded June 29. CD 7/2, under CA.

† **Litchfield Constr. Co.**, 721 Franklin Blvd., San Rafael, Calif. Contract Awarded, $438,416, OPERATIONS Bldg., under 1026, TWO ROCK RANCH, CALIF. U. S. Eng., 180 New Montgomery St., San Francisco, Calif. Awarded June 29.

ALASKA

BIDS ASKED—HEAVY CONSTRUCTION

† Alaska—LIQUID FUEL SYSTEMS—B.A. 7/25—U. S. Eng., New Washington Hotel, Seattle, Wash., construct complete bulk liquid fuel systems, incl: tanks, piping and pumping facilities at Ocean Dock area, Elmendorf Air Force Base and Fort Richardson, Inv. No. 595-507-51-110. Plans deposit $50.

BUILDINGS

LOW BIDS AND CONTRACTS

R. E. Sticha & F. W. Schodde, 713 1 St., Fairbanks, Alaska. Day Labor. Approx. $139,000. BAKERY, FAIRBANKS, ALASKA.

CANADA

BIDS ASKED—BUILDINGS

Sask., Prince Albert—ROUND HOUSE, etc.—B.A. 7/23—Canadian National Rys., V. L. Charles, ch. engr., Winnipeg, Man., 12 stall round house, machine shop. Plans deposit $25.

▲ N. S., Halifax—HOSPITAL—B.A. 7/24—E. L. Miller, secy. Chilcren's Hospital Comn., Halifax, Children's Hospital addn., alterations, Morris St., Approx. $1,000,000. Plans deposit $100. C. A. Fowler & Co., Capitol Bldg., archts. CD 5/23.

Ont., Toronto—SCHOOL—B.A. 7/24—Public School Bd., Scarborough Twp., 1650 Kingston Rd., 1 and 2 story, 58x257 ft., and wing 40x62 ft., brick, block school. $360,000. Murray Brown & Elton, 622 Confederation Life Bldg., archts. CD 12/15/43.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

Kummen Shipmen Electric Ltd., Winnipeg, Man. Contract Awarded. $85,055, overhead electrical distr. sys., FORT GARRY, MAN. University of Manitoba, Winnipeg, Man. R. S. White, town engr.

Forbes & Sloat, 648 Union Ave., Fredericton, N. B. Contract Awarded, $121,000, water mains, FREDRICTON, N. B. Municipality, Fredericton, N. B. J. D. Mackay, City Hall, city engr.

Chester Daw, Waterford Bridge, St. John's, Newfoundland. Low Bidder. $319,200, est. $150,000, wharf reconstruction CARBONEAR, NEWFOUNDLAND, Dpt. P. Wks., Hunter Bldg., Ottawa, Ont. Bids June 27. CD 6/19.

Consolidated Dredging Ltd., 54 Chestnut Park Road, Toronto, Ont. Contract Awarded. Approx. $245,800, dredging in harbor, FORT WILLIAM, ONT. Dpt. P. Wks., Hunter Bldg., Ottawa, Ont. Bids June 27. CD 6/27.

Russell Constr. Co., Ltd., Harbor Comn. Bldg., Toronto, Ont. Low Bidder. $248,533, two-berth dock at Hanlan's Point, Toronto Island, TORONTO, ONT. City, City Hall, Toronto, Ont. CD 10/21/48.

Diamond Constr. Co. Ltd., 60 Carleton St., Fredricton, N. B. Contract Awarded. $49,715, breakwater, SOURIS, P.E.I. Govt. of Canada, Hunter Bldg., Ottawa, Ont. Bids June 27. CD 6/19.

Komo Constr. Ltd., 1500 St. Vallier St., Quebec City, Que. Contract Awarded. $650,000, grav. Beaumont Bellechasse County, QUEBEC. Dpt. Roads, Quebec City, Que.

J. P. Porter Co. Ltd., 1010 St. Catherines St. W., Montreal, Que. Contract Awarded. Approx. $216,857, dredging 4,350 cu. yd. rock, 70,400 cu. yd. sand, gravel, earth, clay and boulders, AMHERST HARBOUR AND HAVRE AMHERST, QUE. Dpt. P. Wks., Hunter Bldg., Ottawa, Ont. Bids June 27.

Shannon Brothers, Tisdale, Sask. Contract Awarded. $53,000, sewage treatment plant, TISDALE, SASK., Municipality, Tisdale, Sask. Bids May 1. CD 4/20.

BUILDINGS

LOW BIDS AND CONTRACTS

Burns & Dutton Concrete & Constr. Co. Ltd., 5440 First St. W., Calgary, Alta. Contract Awarded. $926,000, ADMINISTRATION and DORMITORY BLDGS. at Bowden Institute, EDMONTON, ALTA. Dpt. P. Wks., Parliament Bldg., Edmonton, Alta. Bids June 22, awarded June 30.

L. Schwartz, 226 Lonsmount Dr., Forest Hill, Ont. Day Labor. $374,815, APARTMENT UNITS, FOREST HILL, ONT.

Damien Boileau Ltd., 705 Beaumont Ave., Montreal, Que. Contract Awarded. Approx. $450,000, 1 story, 64x99 ft., and five 1 story, 58x83 ft., concrete SCHOOL BLDGS., DORION, QUE. School Comn., Dorion, Que. Bids Apr. 25. CD 4/12.

Bergerville Estates Ltd., 322 St. Jean St., Quebec City, Que. Contract Awarded. Approx. $100,000, 90x200 ft., structural steel, PLANT UNIT at shipbuilders, LAUZON, QUE. Geo. T. Davie & Sons Ltd., 25 Davie St., Lauzon, Que.

▲ **Harron & McCance Ltd.**, 53 Clencairn Ave., Toronto, Ont. Separate Contracts. $1,000,000, HOUSING, TORONTO, ONT.

PROPOSED PROJECTS

WATER SUPPLY

O., Amsterdam—Village, Floyd Cutshall, chn. Water Bd., Amsterdam, reservoir and filter plant.

Okla., Mid West City—City, 6 drilled wells, pipe lines and 1 m.g. reservoir. $300,000. J. M. Plank, 1323 N. Robinson St., Oklahoma City, consult. engr.

Tex., Big Spring—City, water storage, incl. elevated steel tank and tower, ground reservoir, $250,000; WW sys. extens., rehabilitation, $625,000. Parkhill, Smith & Cooper, 1414 Avenue J, Lubbock, consult. engrs. CD 3/2.

Tex., El Paso—City, earthern water storage reservoir, $1,500,000. CD 1/22/48.

Tex., Roby—Roby, c/o Fisher County Water Control & Imprvt. Dist. 1, Roby, Tex., voted bonds, 6 in. c.i. water, 10 mile main from Sweetwater to Roby, $350,000. CD 6/22.

Tex., Stanton—Martin County Water Control & Conservation Dist., Stanton, water supply, $200,000; water mains, $175,000.

Ont., Parkhill—Ausable River Auth., Chn. John A. Morrison, R.R. 5, Parkhill, dam, reservoir, in Hay Twp. 3 mi. west of Hensall. $250,000. S. W. Archibald, 456 Wellington St., London, engr.

SEWERS, WASTE DISPOSAL

Ark., Rogers—City, R. L. Vogt, mayor, voted $405,000 bonds, sewer imprvs., extens. Marion L. Crist & Assocs., Union Life Bldg., Little Rock, consult. engrs. CD 3/22/50.

Ill., Monsanto (East St. Louis P.O.)—Village, c/o Lee Sauget, mayor, Village Hall, Falling Spring Rd. and Midwest Ave., voted $300,000 bonds, sewerage system. Joseph W. Goldenberg, Metropolitan Bldg., East St. Louis, consult. engr. CD 6/15.

Ill., Tuscola—City, sewerage system expansion, $100,000. Paul J. Kleiser, 671 Tippecanoe St., Terre Haute, Ind., consult. engr.

Minn., Osseo—Village, sanitary sewer collection sys., trunk sewer connecting with proposed sewerage sys. in village of Crystal. $300,000. R. D. Thomas & Assoc., 400 Metropolitan Life Bldg., Minneapolis, consult. engrs.

O., Dayton—Comrs. Montgomery Co., Court House, construct vitr. and transit sanitary sewers along with concrete and vitr. lateral sewers within Beavercreek Sanitary Sewer Dist. $360,000. Earl W. Riber, co. sanitary engr.

Tex., Big Spring—City, sewage treatment plant addn., incl. capacity 1.2 g.p.d. and sanitary sewer addn. $100,000. Parkhill, Smith & Cooper, 141 Avenue J, Lubbock, consult. engrs. CD 3/5.

Tex., Corpus Christi—City, voted bonds, sanitary sewers, $220,000; storm sewers, $280,000. CD 6/7.

Tex., Haltom City—City, J. C. Gunter, mayor, voted bonds. Proj. 1, sanitary sewer lines, $100,000; sewage disposal plant, $800,000. CD 6/21.

BRIDGES

Mich., Adrian—City, voted bonds, 36 ft. concrete bridge over Wolf Creek; 36 ft. concrete bridge over River Raisin. $210,000. CD 5/29.

Wash., Seattle—King Co., County-City Bldg., vehicular overpass over railroad track at S. 116 St. in Duwamish-Allentown area. $250,000. D. L. Evans, c. engr.

STREETS AND ROADS

▲ **Mo., Kansas City**—City P. Wks., City Hall, Kansas City, Zone 6, 6th Street Expressway from Bluff to Holmes St., 5 to 6 Sts. $9,000,000. John E. Maring, city engr.

Neb., Omaha—Douglas Co., paving 11 mi. mail route roads. $100,000. Kirkham, Michael & Assoc., 1504 Dodge St., consult. engrs. CD 5/10.

N. Y., Hamlin—Town, 8.56 mi. roads. $123,502.

N. Y., Mt. Morris—Town, 18.04 mi. roads. $120,900.

N. Y., Nunda—Town, 19.6 mi. roads. $116,500.

N. Y., Perinton—Town, 9.22 mi. roads. $102,101.

Tex., Corpus Christi—City, voted bonds, street imprvs. $550,000. CD. 6/7.

Tex., Cuero—DeWitt Co., Court House, construction and imprvs. to farm-to-market road, 2.8 mi., north of Lindaleu. $60,000; 4.4 mi., from State Hy. 39 to Armeceeville, $90,000; 2.9 mi. from F. M. Road 682 to Stratton, $65,000; 3 mi. from F. M. Road 108 to near Nopal, $70,000.

▲ **Tex., El Paso**—City, street paving. $1,000,000.

† **Tex., Fort Hood**—U.S. Govt. c/o Contracting Officer, Fort Hood, resurf. gravel range, access road, Inv. No. E-41-043-51-91. $225,000.

Tex., Port Lavaca—City, street imprvt., paving, $300,000. Freese & Nichols & Turner, Natl. Standard Bldg., Houston, consult. engrs. CD 6/19/50.

Wash., Seattle—City, County-City Bldg., Seattle, Zone 4, wid'n. Orcas St. between 52 Ave. S. and Lake Washington Blvd. S. and other streets in Seward Park Area. $222,694. R. W. Finke, city engr.

EARTHWORK, WATERWAYS

▲ **Tex., Mission**—Water Dist. 16, Mission, bond election July 30, earthen reservoir for irrigation, $850,000; shop, storage, clearing and grubbing and appurtenances for irrigation proj., $229,834; pumping plant for serving irrigation proj., $600,000; open earthen canals for irrigation purposes, $550,000. A Tamm, 216 E. Van Buren St., Harlingen, consult. engr. Charles Meiden, Edinburg, proj. engr. CD 1/16/46.

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PORTLAND CEMENT

AIRPORTS

▲ **Colo., Denver**—AIRFIELD IMPRVS.—City and Denver Co., City and County Bldg., imprvs. at Stapleton Airfield, incl. office bldg., utilities, control tower, post office and air cargo space, ticketing wing and passenger walkways and remodel center sect. of present administration bldg. at airport. $3,343,154. C. Meredith Musick, Patterson Bldg., consult. engr. CD 9/21/48.

▲† **Kan., Salina**—AIR BASE—Defense Dpt., U. S. Eng., Davidson Bldg., Kansas City 8, Mo., Smoky Hill Air Base, airfield pavements, facilities for fuel storage, communications, navigation lighting, operations, maintenance, troop training family housing, utilities, storage, shops, administration etc. $24,365,000.

† **Kan., Topeka**—AIR DEPOT—U. S. Eng., Davidson Bldg., Kansas City 8, Mo., Topeka Air Depot, utilities and storage facilities. $352,000.

▲† **Kan., Topeka**—AIR FORCE BASE—Defense Dpt., Air Forces, c/o Capt. G. Holdenburg, Forbes Field, Forbes Air Force Base, increasing length of runways 1,500 ft., for B-47 jet bombers, new bldgs. etc. $20,341,008.

Me., Augusta—AIRPORT—State Aeronautics Comn., State Airport, airport imprvs., lengthening black-top strip to 4,200 ft., etc. $250,000. Seelye, Stevenson, Value & Knecht, 101 Park Ave., New York, N. Y., consult. engrs. CD 3/19.

▲† **Mich., Kinross**—AIRFIELD EXPANSION—Dpt. Air Force, Pentagon Bldg., Wash., D. C., airfield expansion at Kinross Airfield. $6,166,000.

▲† **Mich., Selfridge Air Force Base**—EXPANSION—Dpt. Air Force, Pentagon Bldg., Wash., D. C., expansion and addtl. structures. $3,193,000. CD 3/28.

▲† **Mo., Sedalia**—AIR BASE IMPRVS.—U. S. Eng., Davidson Bldg., Kansas City, 8, Mo., air base imprvs., airfield paving, fuel storage and dispersing facilities, operational facilities, aircraft maintenance training, troop family housing administration and supporting facilities. $22,462,000.

▲† **Tex., Austin**—AIR BASE—U. S. Eng., 606 Santa Fe Bldg., Galveston, storage and warehousing, $1,500,000; misc. constr. $2,000,000; administration and operational bldgs., $1,250,000; airfield pavement, $3,000,000; barracks or housing, $5,500,000; shops, $1,000,000; messes, $1,000,000; outside lighting extens. and imprvs., $75,000; roads, $100,000; sewers, $80,000; gas sys., $75,000; water sys., $100,000 for Bergstrom Air Force Base.

Tex., Corpus Christi—AIRPORT—City, voted bonds, airport expansion. $300,000. CD 6/7.

▲† **Tex., Del Rio**—AIR BASE—U. S. Eng., 606 Santa Fe Bldg., Galveston, water sys., $75,000; misc. constr. $1,750,000; airfield pavement, $3,000,000; barracks or housing, $2,500,000; repair shops, $951,000; admin. and operational bldgs. $1,500,000; general storage or warehousing, $2,000,000; outside lighting, $85,000; fueling and storage sys. $200,00; roads, $90,000; sanitary sewerage sys., $75,000, for Del Rio Air Force Base. CD 2/16.

▲† **Tex., El Paso**—AIRFIELD IMPRVS.—U. S. Eng., Box 1538, Albuquerque, N. M., air field imprvs., $500,000; gas sys. extens., imprvs., $70,000; storage or warehousing, $5,500,000; misc. constr., $21,500,00; barracks or housing, $2,500,000; admin. bldg., $400,000; range constr. $350,000; water sys., $100,000; sewers, $90,000; road constr. and paving, $100,000; outside lighting, $75,000, at Fort Bliss.

† **Tex., Kelly Air Force Base**—ENGINE TEST STANDS—U.S. Govt., c/o Contg. Officer, SAAMA, Kelly Air Force Base, San Antonio, Tex., inclosure for 4 Jacobson Aircraft Engine test stands, control rooms, air-conditioning, IFB 41-142-51-747. $375,000.

▲† **Tex., Kingsville**—AIR FIELD—Dpt. Navy, Kingsville, barracks or housing, $2,000,000; field paving, $750,000; hangars and allied bldgs., $1,250,000, roads and street constr., $90,000; sewers, $70,000; water sys., $75,000 for Chase Field.

LATIN AMERICA

▲ **Mexico, Mexico City**—Mexican Govt., Sria. de B. N., Mexico City, plans federal legislature bldg. $2,310,000.

Mexico, Mexico City—Rumulo O'Farrill, Bucareli 19, Mexico City, plans radio and television center. $500,000.

Mexico, Mexico City—Bernardo Pasquel, Ramon Guzman, 21, Mexico City, plans big league baseball park. $500,000.

Mexico, Mexico City—Alex Taylor, Madero, 18, Mexico City, plans 6 story office bldg. $250,000.

PUBLIC BUILDINGS

▲† **Calif., El Toro**—HOUSING—Eleventh Naval Dist., San Diego, plans by Hugh Gibbs, 441 E. 1 St., Long Beach, Calif., 571 housing units El Toro Marine Corp. Station. Approx. $1,000,000.

Calif., Woodland—HOSPITAL—Yolo Co., Court House, 120-bed hospital addn. $550,000.

Colo., Denver—SCHOOL—School Dist. 1, 414 14 St., Harvey V. Kepner Junior High School. Approx. $300,000. Gordon D. White & Charles H. Overholt, 615 Columbine St., consult. engr.

▲ **Conn., New Britain**—SCHOOL—City, Supt. Schools plans by Warren S. Holmes Co., 220 Olds Tower Bldg., Lansing, Mich., and Emilion John Di Reingo, 57 Gramaton Ave., Mt. Vernon, N. Y., brick, steel, concrete Smith School, $1,200,000.

Conn., New London—SCHOOL—City Bd. Educ., City Hall, plans by Langdon & Neilan, 325 State St., Central High School, $990,000. CD 1/6/50.

▲ **Conn., New London**—RESEARCH LABORATORY—Third Naval Dist., 90 Church St., New York, N. Y., plans by Skidmore Owings & Merrill, 575 Madison Ave., New York, N. Y., Medical Research Laboratory, $1,000,000.

Ga., Rome—RECREATION—State Bd. Education, State Office Bldg., Atlanta, plans by Bothwell & Nash, 206 Roswell St., Marietta, recreation bldg. at Georgia School for Deaf, $300,000.

Ill., Beecher—SCHOOL—School Dist. 200, Beecher, high school $500,000. Atkins Darrow & Lasworth, Urbana, consult. engrs.

Ill., Bethalto—SCHOOL—School Dist. 8, Wilbur R. Trimpe, supt., community high school addn., $459,600.

▲ **Ind., Gary**—HOUSING—Gary Housing Auth., 400 Progress St., 500 housing units, $4,000,000. CD 1/30.

† **Ind., Indianapolis**—ORDNANCE POST—Dpt. Navy, Bureau Yards & Docks, Arlington, Va., Naval Ordnance Post, $357,700.

▲† **Ind., Terre Haute**—FACILITIES—Dpt. Army, Pentagon Bldg., Wash., D. C., misc. facilities at Terre Haute Ordnance Depot, $1,982,200. (Correction location of project). CD 6/29, under Ill. Terre Haute.

▲† **Kan., Fort Riley**—HOSPITAL—U. S. Eng., Davidson Bldg., Kansas City 8, Mo., hospital and utilities, troop supporting facilities, $8,540,000.

▲ **Mass., Lynn**—HOUSING—City Housing Auth., 58 Andrews St., plans by Desmond & Lord, 6 Beacon St., Boston, PHA 23-2, 175-housing units. $1,000,000.

Mass., Medway—SCHOOL—Town, Supt. Schools, plans by Donaldson Ray McMullen, 216 Conant Rd., Weston, brick, steel, concrete school, $600,000.

Mass., Springfield—SCHOOL—Pub. Bldgs. Dpt., City Hall, plans by Morris W. Maloney, 220 Dwight St., 1 story masonry school, East Springfield Sect. $700,000.

Mich., Bad Axe—COUNTY JAIL—Bd. Supervs. Huron Co., plans by Samuel C. Allen, Bearinger Bldg., Saginaw, 2 story bsmnt., rein.-con., steel jail. $300,000.

Mich., Detroit—SCHOOL—Bd. Educ., 1345 Broadway, plans by Edward A. Schilling, 728 Michigan Bldg., 2 story bsmnt., brick, steel, concrete McLeon School. W. Parkway Dr. $500,000. CD 8/25/44.

▲† **Mich., Detroit**—ARSENAL ADDNS.—Dpt. Army, Pentagon Bldg., Wash., D. C., Detroit arsenal addns. $3,009,000. CD 9/27/45.

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Mich., East Grand Rapids—SCHOOL—Bd. Educ., 957 Maxwell St., plans by Perkins & Will, 309 W. Jackson St., Chicago 6, Ill., school; E. Grand Rapids High School addn., Bretin Downs School addn. $900,000.

Mich., Lambertville—SCHOOL—Bd. Educ., Lambertville, bond election July 9, school in Bedford Agricultural School Dist. on Douglas Rd. $420,000.

▲ **Mich., Pontiac**—HOUSING—Pontiac Housing Comn., Pontiac, plans by Otis Winn, 528 Michigan Bldg., Detroit, 300 brick family units, HOUSING PHA Mich 5-2, maintenance, community and administration bldgs. $3,500,000. CD 3/14/50.

Minn., Pierz—HIGH SCHOOL—Bd. Educ., M. Buterac, supt., Pierz, cancelled bond election scheduled for June 19, 1 story 202x350 ft. high school. CD 6/13.

Minn., Rosemount—HIGH SCHOOL—Bd. Educ., L. J. Fluegal, chn., voted bonds, high school. $700,000. Magney, Tusler & Setter, 202 Foshay Tower, Minneapolis, archts. CD 6/19.

▲† **Mo., Fort Leonard Wood**—IMPROVEMENTS—U. S. Eng., Davidson Bldg., Kansas City 8, Mo., improvements, $2,287,700.

Mo., Pattonville—SCHOOL—School Dist. of Pattonville, Bd. Educ., M. A. Holman, supt., Pattonville, plans by Bonsack & Pearce Inc., 208 N. 6 St., St. Louis, Zone 1, high school addn., incl. gymnasium, classrooms, etc. $450,000. CD 6/28.

▲ **N. C., Charlotte**—HOUSING—Charlotte Housing Auth., 831 Seigle Ave., plans by J. N. Pease & Co. Inc., 1194½ E. 5 St., 200 units Rozzelle's Ferry Road HOUSING. $1,750,000.

Okla., Linsay—GENERATOR—City, voted bonds, 850-kw. generator unit at light plant, $145,000. C. H. Guernsey & Co., 2701 N. Oklahoma St., Oklahoma City, consult. engr. CD 6/20.

▲† **Tex., Bastrop**—BUILDINGS, etc.—U. S. Eng., 606 Santa Fe Bldg., Galveston, misc. bldgs., $1,750,000; general storage, $500,000; barracks or housing, $1,500,000, at Camp Swift.

▲ **Tex., Beaumont**—SCHOOLS—South Park Independent School Dist., Beaumont, plans by W. B. Livesay, 3rd Floor Annex, San Jacinto Bldg., No. 1 elementary school, $325,000; No. 2 elementary school, $300,000; high school, $700,000; music and auditorium, $375,000; 2 gymnasiums, $300,000.

Tex., Brownsville—MEMORIAL CENTER—Ft. Brown Memorial Center, c/o City of Brownsville, sponsors, Brownsville, plans by Wiltshire & Fisher, 5217 Ross Ave., Dallas, Ft. Brown Memorial Center. $800,000.

Tex., Coleman—COURT HOUSE—Coleman Co., c/o Ira Galloway, judge, Coleman, plans by Wyatt C. Hedrick Co., 1005 First Natl. Bank Bldg., Fort Worth, remodel court house and addn. of two 3 story, 35x45 ft. brick and stone wings, $300,000.

Tex., Corpus Christi—LIBRARY—City, plans by Morris Levy, M & P Bldg., library, $350,000. CD 1/3/50.

† **Tex., Fort Sam Houston**—TROOP HOUSING, etc.—U. S. Eng., 606 Santa Fe Bldg., Galveston, troop housing, $750,000; storage, $85,000.

▲ **Tex., Dallas**—AUDITORIUM—City, City Hall, Main and Harwood Sts., plans by George L. Dahl, 1920½ Main St., auditorium, $5,000,000. CD 8/9/46.

▲ **Tex., Dallas**—CITY HALL—City, plans by Geo. L. Dahl, 1920½ Main St., Dallas, city hall, $2,500,000.

Tex., LaMarque—SCHOOL—LaMarque Independent School Dist., c/o supt., voted bonds, elementary school addns., improvs. to existing bldgs. $750,000. Wyatt C. Hedrick Co., 5201 Fannin St., Houston, archt.

▲ **Tex., Laredo**—SCHOOLS—Laredo Independent School Dist., J. W. Nixon, supt., Laredo, Job 1, elementary school, $300,000; Job 2, elementary school, $300,000; Job No. 3, elementary school, $300,000; construct 2nd Junior High School, $325,000; school remodeling, $325,000. CD 2/8/49.

▲ **Tex., Port Arthur**—HOSPITAL—City, 150-bed municipal hospital, $2,090,000.

▲† **Tex., Texarkana**—RED RIVER ARSENAL—U. S. Eng., Box 61, Tulsa 2, Okla., misc. constr. $3,950,000; storage or warehousing, $3,000,000; shops, $3,500,000; outside lighting sys. extens., improvs., $90,000; water sys. improvs., extens., $50,000; road constr. and paving, $85,000; sewers, $75,000 at Red River Arsenal. CD 2/1.

Tex., Richardson—HIGH SCHOOL—Richardson Independent School Dist., Richardson, plans by Buford & Feinberg, 326 Interurban Bldg., Dallas, high school. $325,000.

Utah, Lewiston—SCHOOL—Lewiston School Dist., Lewiston, plans by Karl C. Schaub, 75 N. Main St., Logan, elementary school, 15 classrooms, etc. $300,000.

▲ **Wash., Olympia**—OFFICE—State Capitol Com., Olympia, plans by A. G. Lumm, Rust Bldg., Tacoma, office bldg. $2,400,000. CD 2/28/49.

Man., Norway House—HOSPITAL—Dpt. National Health & Welfare Ottawa, Ont., 50-bed hospital $500,000 Dpt. P. Wks., Hunter Bldg., Ottawa, Ont., engr.

COMMERCIAL BUILDINGS

▲ **Calif., Los Angeles**—OFFICE—Massachusetts Mutual Life Insurance Co., 530 W. 6 St., plans by Welton Becket & Assoc., 4657 Wilshire Blvd., 4 story, rein.-con. OFFICE, $2,000,000. Kahn & Jacobs, 1407 Broadway, New York, N. Y., consult. engrs.

▲ **Calif., Oxnard** — DWELLINGS — Thomas Companies, Inc., 2486 Huntington Dr., San Marino, Calif., 449 frame stucco dwellings, Ventura and Wooley Rds. $3,000,000.

▲ **D.C., Wash.**—HOSPITAL—Providence Hospital 2 and S Sts. S. E., 400-bed hospital on 14-acre tract at 12 and Varnum Sts. N. E. Approx. $6,000,000-$8,000,000.

Fla., Hollywood—APARTMENT DEVELOPMENT—Sond Corp., c/o Cedric Start & Donald Moeller, archts., 1457 Jackson St., Hollywood, apartment development. Approx. $300,000.

▲ **Ga., Smyrna**—HOUSING—Belmont Hills, Inc., c/o S. W. Peabody & J. C. Foster, 530 N. McDonough St., Decatur, Ga., 500 housing units. $4,000,000.

Mass., Worcester—HOSPITAL—Hohnemann Hospital, 281 Lincoln St., plans by Johnson & Rustigan, 390 Main St., hospital addn. $500,000.

▲ **Mo., St. Louis**—HOSPITAL—Alexian Brothers Hospital, Brother Silverisu, admin., 3933 S. Broadway Zone 18, plans by William J. Theodor, Granite Bldg., 406 Market St., Zone 2, 5 story, bsmnt., brick, rein.-con. 150-bed hospital addn. and rehabilitate present bldg., $2,500,000. CD 5/23.

▲ **N. M., Glorieta**—CAMPSITE—Southern Baptist Assn., 1800 Whites Creek Park, Nashville, Tenn., plans by Herkenhoff & Turney, 223 Montezuma St., Santa Fe, Baptist campsite incl. large central auditorium bldg. with conference rooms, dining rooms, assembly halls, individual dormitories and recreational bldgs., artificial lake and outdoor recreation facilities. $4,000,000.

N. Y., Mt. Vernon—APARTMENT—Busro Co., c/o H. I. Feldman, archt., 415 Lexington Ave., New York Zone 7, 8 story apartment, 30th E. Prospect Ave., east of Claremont Ave. $1,200,000.

N. Y., New York—CHURCH—Roman Catholic Church of St. Jude, 189 Sherman Ave., Zone 34, plans by Voorhees, Walker, Foley & Smith, 101 Park Ave., Zone 17, church and school, 481 W. 204 St. $600,000.

Tex., Dallas—COLLEGE BLDG.—Baylor College of Dentistry, 1420 Hall St., new building, $400,000.

Tex., Houston—CHURCH—Emmanuel Temple, Harrisburg and Wayside Sts., plans by Mrs. A. T. Sevier, Crockett, brick, stone church, concrete pier and beam fdn., air-conditioning, $650,000; masonry parochial school, $850,000.

Tex., Rosenberg — DIAL TELEPHONE PLANT — Southwestern Bell Telephone Co., Rosenberg, 2 story bsmnt. dial telephone plant. $500,000.

Wis., Beloit—MASONIC TEMPLE—Beloit Masonic Temple Assn., Beloit, plans by M. Webster, 529 Main St., Evanston, Ill., Masonic temple $400,000.

Wis., Milwaukee—GYMNASIUM—St. John's Cathedral High School, 766 N. Van Buren St., Zone 2, plans by Urban F. Peacock, 1012 N. 3 St., Zone 3, 2 story gymnasium, $600,000.

Alaska, College—APARTMENTS—University of Alaska, College 2 apartments, $435,000; men's dormitory, $400,000.

▲ **Que., Montreal**—HOSPITAL—Queen Elizabeth Hospital of Montreal, Marlowe Ave., plans by Ross & Assocs., 1200 Dominion Square Bldg., Montreal, 150-bed hospital addn. $2,000,000.

▲ **Que., Quebec City**—HOSPITAL—Reverend Sisters of Augustines, 7 Charlevoix St., Quebec City, plans by E. H. Talbot, 50 Du Vieux Moulin St., Giffard, Que., 250-bed hospital addn., $3,000,000. CD 4/26/40.

INDUSTRIAL BUILDINGS

▲ **Ala., Mobile**—ELECTRIC PLANT—Alabama Power Co., 600 N. 18 St., Birmingham, Barry Steam Electric Plant, $30,000,000.

▲ **Ill., Chicago**—PLANT—Fairchild Engine & Aircraft Co., Hagerstown, Md., modification and rehabilitation former Douglas Aircraft Co. plant, $20,000,000.

▲ **Ill., Wood River**—PLANT—Standard Oil Co. of Indiana, M. G. Paulus, vice pres. in charge of manufacturing, 91 S. Michigan Ave., Chicago, Zone 80, plant.

▲ **Ind., Connersville**—PLANT EXPANSION—Roots-Connersville Blower Co., plant expansion, $1,500,000.

Ky., Henderson—WAREHOUSE, etc.—Elmer Herron, Henderson, rebuild warehouse, office. Approx. $200,000.

▲ **La., Baton Rouge**—PLANT—Naugatuck Chemical Div. of U. S. Rubber Co., 1230 Avenue of Americas, New York, N. Y., plans by Bodman & Murrell, 1175 Nicholson Dr., Baton Rouge, plant addns. $2,000,000. CD 4/20.

La., Shreveport—GARAGE—S. & L. Servicee & Storage Co., c/o Neild-Somdal & Assoc., Texas Eastern Bldg., auto parking garage. $200,000.

▲ **Mich., St. Louis**—PLANT—Michigan Chemical Co., Roland P. Place, pres., St. Louis, 1 story rein.-con. chlorine plant. $32,000,000.

▲ **Mich., Ypsilanti**—PLANT—Ford Motor Co., 3000 Schaefer St., Dearborn, 400,000 sq. ft. aircraft accessories plant for Parts and Equip. Div. of Ford Motor Co. $4,000,000.

Neb., Omaha—PLANT—Cudahy Packing Co., 33 and O Sts., changes in plant structure. $300,000. E. L. Hamilton, c/o owner, ch. engr.

N. Y., New York—FACTORY—New Era Lithograph Co., 495 Broadway, factory, 499 Broadway and 70 Mercer St. $150,000. Victor Mayper, 110 W. 40 St., Zone 18, engr.

▲ **N. Y., Niagara Falls**—PLANT—Speer Carbon Co., Theresia St., St. Marys, Pa., graphite electrode mfg. plant. $8,000,000.

▲ **O., Cleveland**—PLANT—Cleveland Twist Drill Co., 1242 E. 49 St., unit adjacent to present plant. $2,000,000.

▲ **O., Youngstown**—PLANT—Lee Rubber & Tire Corp., Albert St., 1 story, 80,000 sq. ft. plant addns. to Republic Rubber (Lee subsidiary), Albert St. $2,000,000.

▲ **Okla., Elk City**—PLANT—Shell Oil Co., Elk City, enlarging gas processing and recycling plant. $3,000,000. CD 6/13.

▲ **Tex., Brownsville**—PLANT—Texas International Manganese Corp., Brownsville, manganese concentration plant. $1,250,000.

▲ **Tex., Kingsville**—PLANT—Celanese Corp., Kingsville, addnl. expansion chemical plant. $3,500,000.

▲ **Tex., Liberty**—PLANT—Texas Gulf Sulphur Co., Liberty, construction of 50% sulphur plant increase, $3,000,000.

▲ **Tex., Lone Star**—POWER PLANT—Lone Star Steel Co., Karnack, addnl. power plant unit, $3,500,000.

▲ **Tex., Odessa**—REFINERIES—Gilmore Refineries, Inc., c/o Earl B. Gilmore, 612 S. Flower St., Los Angeles, Calif., Unit 1, 25,000 bbl. refinery, $20,000,000; Proj. 2, 25,000 bbl. refinery, $20,000,000.

Tex., San Antonio—FACTORY—Gaylord Container Corp., 314 Probandt St., corrugated box factory. $200,000.

▲ **Wash., Longview** — PLANT — Reynolds Metals Co., Longview, increasing size of pots on three pot lines at aluminum plant, $12,000,000.

▲ **Wis., Green Bay**—POWER PLANT—Wisconsin-Michigan Power Co., 137 W. Mill St., Appleton, will not construct steam power plant, $20,000,000 incl. equip. Project abandoned. CD 12/28/50.

▲ **N. S., Sydney**—EXPANSION—Dominion Steel & Coal Corp. Ltd., Sydney, third stage expansion approved, incl. new battery of coke ovens, two new open hearth furnaces, addn. blooming mill, new high carbon wire drawing plant, new machine shop $16,000,000. CD 11/16/50.

UNCLASSIFIED

Alabama — RURAL DISTRIBUTION LINES — Baldwin County Electric Membership Corp., Robertsdale, 25 mi. rural distr. line and sys. imprvs. Baldwin Co. $157,000.

▲† **Ill., Rock Island**—FACILITIES—Dpt. Army, Pentagon Bldg., Wash., D. C., added facilities at Rock Island Arsenal, $3,290,000.

Indiana—RURAL DISTRIBUTION LINES—Daviess-Martin County Rural Electric Membership Corp., Washington, 71 mi. rural distr. line and sys. imprvs., Daviess Co. $290,000.

Missouri — RURAL DISTRIBUTION LINES — Crawford Electric Co-operative, Bourbon, Mo., constr. addnl. 300 mi. rural distr. lines, extensions and other system imprvs. 2-way radio system, etc. $1,300,000. Birenbaum & Smith, 7510 Delmar Blvd., St. Louis 5, Mo., consult. engrs. CD 6/6/49.

O., Parma—DISTRIBUTION SYSTEM—Ohio Fuel Gas Co., 99 N. Front St., Columbus, expand distr. sys. $300,000.

Oklahoma — RURAL DISTRIBUTION LINES — Central Rural Electric Co-operative, Stillwater, 1,014 mi. rural distr. lines, Okla. 24R Lincoln, Payne Co. $980,000. C. H. Guernsey & Co., 1414 N. Robinson St., Oklahoma City, consult. engrs. CD 10/18/46.

Oklahoma—RURAL DISTRIBUTION LINE—Oklahoma Gas & Electric Co., 321 N. Harvey St., Oklahoma City, 50 mi. 66 kva transmission line from Oklahoma City to Southard, Oklahoma Co. $683,000.

Oklahoma—RURAL DISTRIBUTION LINES—Verdigris Valley Electric Co-operative, Collinsville, 239 mi. rural distr. lines, Tulsa Co. $530,000. E. R. Taylor & Co., 4107-AE 11 St., Tulsa, consult. engrs. CD 3/29/49.

▲ **Texas, New Mexico, Arizona, California**—PUMPING STATIONS, PIPE LINES, etc.—Progress Pacific Pipeline Co., c/o Ford, Bacon & Davis, Inc. engr., 39 Broadway, New York, N. Y., 17 crude oil and products pumping stations at 65 mi. intervals, from Odessa, Tex. to Long Beach Harbor, Calif. to serve two 1,100 mi. lines running parallel, $10,000,000; 1,100 mi. 12¾- to 16-in. welded joint products pipe line carrier from Odessa, Tex., through New Mexico, Arizona to Long Beach Harbor, Calif., $38,000,000; 1,100 mi. 24 in. welded joint crude oil pipe line carrier from near Odessa, Tex., through New Mexico, Arizona to Long Beach Harbor, Calif., 250,000-300,000 bbl. daily capacity, $70,000,000.

▲ **Texas and Illinois**—PIPE LINE—Phillips Petroleum Co., Bartlesville, Okla., 500 mi. 6 in. propane pipe line from Borger, Tex. to Chicago, Ill. $6,000,000. S. S. Learned, Bartlesville, Okla., engr.

† **Tex., Bastrop**—LIGHTING SYSTEM, etc.—U. S. Eng., 606 Santa Fe Bldg., Galveston, outside lighting sys., $75,000; fueling sys. $125,000 at Camp Swift.

Tex., Corpus Christi—PARKS—City, voted bonds, parks, $150,000. CD 6/7.

Tex., El Paso—STREET ELECTRIC LIGHTING—City, street electric lighting system rehabilitation and extension, $350,000.

Tex., Palestine—RAILWAY YARD—Missouri Pacific Ry. Co., Palestine, addnl. railway yard, incl. tracks, $175,000.

▲ **Virginia**—TUNNEL, etc.—State of Virginia, Richmond, 7,200 ft. tunnel, bridge causeway between Norfolk and Newport News, $42,000,000. Howard, Needles, Tammen & Bergendoff, 55 Liberty St., New York, N. Y., consult engrs.

Wisconsin—RURAL DISTRIBUTION LINES—Vernon Electric Co-operative, Westby, 40 mi. rural distr. line and sys. imprvs., Vernon Co., $360,000.

Sask., Black Bay—WHARF—Dpt. P. Wks., Hunter Bldg., Ottawa, Ont., wharf. Approx. $425,000. R. Blais, c/o owner, engr.

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CONSTRUCTION REPORTS-Second Section

NEW ENGLAND

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
STREETS AND ROADS
July 24 Massachusetts

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

† **Bayer & Mingolia Constr. Co.**, Inc., 90 Lincoln St., Worcester, Mass. Low Bidder. $587,684. runway exten. and taxiway Barnes Field, WESTFIELD, MASS. U. S. Eng., 857 Commonwealth Ave., Boston, Mass.

RHODE ISLAND—State Div. Purchases, at office Franklyn A. Adams, purch. agent, Smith St., Providence,
S & W Contr. Co., 30 Salmon St., Providence, R. I. Contract Awarded, $683,073, highway and bridge, Quaker Lane to Bald Hill Rd., Contr. 5101, Warwick-Lincoln, Kent Co. Bids May 23, awarded June 18. CD 6/21, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **A. S. Volpe & Co., Inc.**, 185 Devonshire St., Boston 10, Mass. Low Bidder, $1,245,000, est. $800,000. 4 story, 61x213 ft., rein.-con., OFFICE, 47x83 ft. and 47x146 ft. two story wings, heating, ventilating, plumbing and electrical work and fixtures incl., CONCORD, N. H. Dpt. P. Wks. & Hys., Concord, N. H. Bids July 6. Nichols & Butterfield and Russell & Graham, West Hartford, Conn., archts. CD 6/22.

▲ **Granger Constr. Co., Inc.**, 306 Main St., Worcester, Mass. and **Theodore Loranger & Sons**, 404 Nash Rd., New Bedford, Mass. Contract Awarded, $7,000,898. 7 story HOSPITAL, Vernon St., WORCESTER, MASS. St. Vincent's Hospital, 73 Vernon St., Worcester, Mass. Bids June 8. CD 5/31.

▲ **Gilbane Building Co.**, 90 Calverly St., Providence, R. I. Contract Awarded, $1,900,000. Our Lady of Fatima HOSPITAL, NORTH PROVIDENCE, R. I. Roman Catholic Diocese of Providence, Cathedral, c/o contractor. Bids May 4. CD 4/18.

Associated Constr. Co., 1010 Wethersfield Ave., Hartford, Conn. Contract Awarded, $655,000. elementary SCHOOL, off Farmington Ave. and Cottage St., PLAINVILLE, CONN. Bd. Educ., High School Bldg., Plainville, Conn. Bids May 1. CD 5/10, under LB.

MIDDLE ATLANTIC

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES
July 25 New York July 31 New Jersey
STREETS AND ROADS
July 25 New York July 31 New Jersey

N. J., Bloomingdale—A.B.A. 7/26—Roy Mickens, mayor, and Council of Bloomingdale Boro, Bloomingdale, imprv. Main St. from Station 0 plus 00 at road to Butler and extending 1.190 ft. southerly for construction of modified penetration macad. pavement on a macad. base with 6- conc. type (FAGC-1) wearing surf., c. conc. curb, sidewalks, retaining walls, etc. Plans deposit $10. G. Waldo Rude, 30 Colfax Ave., Pompton Lakes, noro engr; adv. ENR 7/19.

BIDS ASKED—BUILDINGS

Del., Wilmington—SCHOOL—B.A. 7/25—Wilmington Bd. Educ., 11 and Wollaston Sts., school, Delaware Ave. $825,200, George E. Pope & Albert Kruse, Elks Bldg., archts. Bids 2/28 rejected. CD 3/30, under L.B.

Pa., Lock Haven—BOILER PLANT—B.A. 7/26—General State Auth., 18 and Herr Sts., Harrisburg, boiler plant addn. at Lock Haven State Teachers College, $90,000. Plans deposit $7.50. Gilboy & O'Malley, Mears Bldg., Scranton, Zone 3, engrs.

Pa., Sagerstown—HIGH SCHOOL—B.A. 7/31—Consolidated School Dist. of Area 5, Sagerstown, Junior Senior High School and grade school. $525,000. Gordon Hayes, 232 Delaware St., Buffalo, N. Y., archts. CD 1/15.

SOON LETS CONTRACT—BUILDINGS

Pa., Pittsburgh—COMMUNITY HOUSE—Duquesne University, Bluff St., soon lets contract 3 story bsmnt., T-shaped, 37x196 ft. and 26x38 ft., brick, concrete, steel community house. $500,000. R. B. O'Connor & W. H. Kilham, 101 Park Ave., New York, N. Y., archts. CD 6/15.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲† **Merritt-Chapman & Scott Corp.**, 17 Battery Pl., New York 4, N. Y., Contract Awarded, $2,404,735, rehabilitation work Part II at Air Force Base, SAMPSON, N. Y. U. S. Eng. 80 Lafayette St., New York 13, N. Y. Bids June 29. CD 1/31.

▲ † **Gahagan Constr. Corp.**, 90 Broad St., New York 4, N. Y. Contract Awarded. $3,136,341. Dredging New York-New Jersey Channels, Perth Amboy Anchorage, NEW YORK and NEW JERSEY. U. S. Eng., 80 Lafayette St., New York 13, N. Y. Bids Mar. 7. CD 4/10. Under LB.

† **Central Automatic Sprinkler Co.**, Lansdale, Pa. Contract Awarded. $268,538, sprinkler sys. at Belle Mead General Depot, BELLE MEAD, N. J. U. S. Eng., 80 Lafayette St., New York 13, N. Y.

† **Barrett Paving Co.**, Stacey Trent Hotel, Trenton, N. J. Contract Awarded. $120,595. resurf. roads and parking area, McGuire Air Base, FORT DIX, N. J. Dpt. Army, Fort Dix, N. J. Bids June 26.

† **John B. Kemmel**, 1236 Olive St., Phila., Pa. Contract Awarded. $282,742. airship dock alterations, NOY 242e2, Spec. 26560, LAKEHURST, N. J. Dpt. Navy, Phila. Naval Base, Phila., Pa. CD 10/13.

▲† **McCloskey & Co.**, 1620 W. Thompson St., Phila., Pa., Contract Awarded, $2,005,450, Naval Air Development Center, development and test facilities, JOHNSVILLE, PA. Dpt. Navy, Phila. Naval Base, Phila. Pa. CD 1/18.

† **Engstrom & Wynn**, 117 Chapline St., Wheeling, W. Va., Low Bidder, $507,800, est. $500,000. 2 and 3 story, approx. 34,740 sq. ft. block airplane hangar addn., PITTSBURGH, PA. U. S. Govt., Dpt. Army, National Guard, Annville, Pa. CD 6/26.

▲† **William Linker Co.**, 2036 Arch St., Phila., Pa., Low Bidder, $1,010,048. hangars bldg., related facilities New Castle Air Base, NEW CASTLE, DEL. U. S. Eng., 121 N. Broad St., Phila. 1, Pa. Bids June 29.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Leon D. DeMatteis Constr. Co.**, 313 36 St., Brooklyn 32, N. Y. Contract Awarded, $1,413,082, general constr. HIGH SCHOOL, Conklin and Cherry Sts., FARMINGDALE, N. Y. Bd. Educ., Union Free School Dist. 22, Farmingdale, N. Y. Bids June 14. CD 5/16.

▲ **Willaka Constr. Co.**, 11 E. 44 St., New York, N. Y. Contract Awarded, $2,747,000 foundations and general constr. for Redfern HOUSES, Proj. No. NYS-55, Sect. I, incl. Bldgs. 1 to 5 inclusive in area bounded by Nassau county line, Jeannette and Debney Aves., Leland St. and line west of Redfern Ave. between Leland and Hassock Sts., Hassack St. and Beach Channel Dr., Queens Boro, FAR ROCKAWAY, N. Y. New York City Housing Auth., 63 Park Row, New York 7, N. Y. Bids June 5. CD 6/15.

▲ **D. M. W. Constr. Co., Inc.**, 2058 Fulton St., Brooklyn, 16, N. Y., Contract Awarded, $7,297,000, general constr.***J. L. Murphy, Inc., 340 E. 44 St., New York 17, N. Y., $1,018,000, heating and ventilating***Eugene Duklauer, Inc., 215 E. 38 St., New York 16, N. Y. $1,264,165 plumbing for Throggs Neck HOUSES, PROJ. N. Y. 5-15, area bounded by Balcom and Randall Aves., E. 177 St., Calhoun, Dewey, Swinton and Sampson Aves., Bronx Boro, NEW YORK, N. Y. New York City Housing Auth., 63 Park Row, New York 17, N. Y. Grand total $9,579,164. Bids May 22. CD 5/25, under LB.

▲ **Psaty & Fuhrman, Inc.**, 369 Lexington Ave., New York 17, N. Y. Low Bidder. $1,510,000 general constr. P.S. 6, Middleton Ave., between 81 and 82 Sts., NEW YORK, N. Y. Supt. School Bldgs., Design & Constr., 49 Flatbush Ave. exten., Brooklyn, 1, N. Y. Bids July 10. CD 7/5.

† **Daley Co.**, 1427 Cornell Ave., Trenton, N. J. Contract Awarded. $531,203. mobilization type BUILDINGS, FORT DIX, N. J. Dpt. Army, Fort Dix, N. J. Bids June 5. CD 6/25, under LB.

▲ **Sterling Constr. Co.**, 607 Grant Bldg., Pittsburgh, Pa. Contract Awarded. $2,000,000. 10 APARTMENTS, 21 units per bldg., brick constr., various dimensions, incl. 5 garages, PITTSBURGH, PA. Noble Manor Apartments, Inc., 6663 Forest Glenn Rd., Pittsburgh, Pa. Phillip Friedman, 121 S. Negley St., Pittsburgh, Pa., archt.

▲**L-D Building Co.**, P. O. Box 487, Latrobe, Pa., Contract Awarded, $2,647,490, est. $3,222,539, 50 bldgs., 2 story, 25x100 ft., brick veneer Federal HOUSING, Proj. Pa-19-3, JOHNSTOWN, PA. Johnstown Housing Auth., Johnstown, Pa., Bids June 21. CD 7/10 under LB.

Margolin & Sons, 2441 Overlook Rd., Cleveland, O. Low Bidder. Approx. $500,000. 1 story, 140x466 ft. brick SHOPPING CENTER and offices, WESLEYVILLE, PA. Broad Erie, Inc., Marine Bank Bldg., Erie, Pa.

SOUTH

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES
July 27 Kentucky
STREETS AND ROADS
July 25 Louisiana July 27 Kentucky

† **Ga., Macon**—SHOP—B.A. 7/24—U. S. Eng., P. O. Box 889, Savannah, special vehicle powered equipment repair shop at Warner Robins Air Force Base. Extended date. Plans deposit $100. CD 5/28.

Louisiana—B.A. 7/25—State Div. Administration, Baton Rouge, construct State Line Canal Weir.

La., Lake Charles—B.A. 7/25—City, City Hall, 31,567 sq. yd. c. conc. and 62,984 sq. ft. sidewalks.

N. C., Burlington—B.A. 7/24—City, 2 m.g.d. sewage treatment plant, Plans deposit $25. Wm. C. Gisell, 5 Exchange Pl., Raleigh, engr.

Va., Arlington—B.A. 7/24—Arlington Co., Court House, exten. to sewage treatment plant; adv. ENR 6/28. CD 11/10.

Va., Fairfax—B.A. 7/26—Fairfax Co. Court House, 8 m.g.d. sewage treatment plant and pumping station, Contr. No. 7; incl. grit removal, pumping, aeration, settling, chlorination, sludge heating, digestion, conditioning, dewatering through filters, drying, grading and storage units. Plans deposit $50. James J. Corbalis, county sanitary engr. Massey Engineers, Ford Bldg., Fairfax, consult engrs. CD 10/13.

N. C., Greenville—RURAL DISTRIBUTION LINES—B.A. 7/27—Greenville Utilities Comn., Martin Swartz, supt., 242 mi. rural distr. lines, Beaufort, Craven and Pitt Counties. Plans deposit $10, L. E. Wooten & Co., 206 S. Dawson St., Raleigh, engrs.

Ga., Atlanta—B.A. 7/30—City, Hemphill Water Pumping Station addns., alterations. Plans deposit $25, Tucker & Howell, Rhodes-Haverty Bldg., Atlanta, Ga., archts. CD 11/22/46.

† **Fla., Cocoa**—BUILDING—B.A. 7/31—U.S. Eng., 375 Riverside Ave., Jacksonville, rehabilitation and modification Bldg. 312, Patrick Air Force Base, Eng. 08-123-52-17. CD 7/12.

BIDS ASKED—BUILDINGS

† **N. C., Salisbury**—HOSPITAL—B.A. 7/24—Veterans Admin., Munitions Bldg., Wash. 25, D. C., construct, finish complete for Veterans Admin. Hospital & TB-NO Bldg. 21, one Patients Tunnel I, etc. Spec. No. 4120. CD 6/8/49.

S. C., Charleston—COLLEGE WING ADDN.—B.A. 7/24—Medical College of the State of South Carolina, Charleston, 4 story brick wing addn. to Medical College. $350,000. Plans deposit $50. Hopkins & Baker, Forence, archts. CD 6/29/50.

Ala., Birmingham—SCHOOLS—B.A. 7/25—City Bd. Educ., City Hall, Western Colored High School, $800,000; administration bldg. at Chas. B. Glenn Vocational School, $300,000. Warren, Knight & Davis, Protective Life Bldg., archts. CD 8/25/44.

N. C., Chapel Hill—INFIRMARY—B.A. 7/26—University of North Carolina, c/o Northrup & O'Brien, archts., Reynolds Bldg., Winston-Salem, infirmary addns., alterations.

Ga., Soperton—HOSPITAL—B.A. 7/31—Treutlen Co., Soperton, hospital, Plans deposit $50. Gregson & Ellis, Mortgage Guarantee Bldg., Atlanta, archts.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **VIRGINIA**—State Hy. Dpt., Richmond,
Albert Bros., 1102 Tennessee St., Salem, Va. Contract awarded, $602,880. c. conc. 3.26 mi. and 505 ft. bridge over Otter River, north of Altavista, U. S. 29, Campbell Co. Bids June 26. CD 7/3, under LB.

▲† **Bero Eng. & Constr. Co.**, Hampton, Va., Contract Awarded, $2,400,739, airport pavement at N.A.A.S. NOY 28422, FENTRESS, VA., Fifth Dist. Pub. Wks. Office, Norfolk 12, Va., CD 7/2, under LB.

▲ **NORTH CAROLINA**—State Hy. and Pub. Wks. Comn., Raleigh, rejected bids June 26, traffic bound macad. or PCSBC, bit. surf. tr. or b. conc. surf. and structures 2.32 mi. Proj. R-401, Person Co. L. B. $82,540; grading, paving 3.49 mi. Proj. 5-403, Person Co. L. B. $96,203; traffic bound macad. and bit. surf. tr. 6.15 mi. Proj. 7197, Caldwell and Watauga Counties. L. B. $781,198; c. conc. 2.82 mi. Proj. 5385, Guilford Co. L. B. $233,950; traffic bound macad. or PCSBC, bit. surf. tr. b. conc. surf. 3.45 mi. Proj. 5.204, Durham Co., L. B. $115,811; STBC, traffic bound macad. b. conc. binder and surf. 12.25 mi. Proj. from U. S. 64 Pittsboro, northeast across Haw River to Orange Co. line, Proj. 4001, Chatham Co., L. B. $513,462. CD 7/3, under LB.

E. C. Bridges, Heath Springs, S. C., Low Bidder, $714,616 rural distr. lines, Proj. 50A, Sect. 5, Santee Co. SOUTH CAROLINA. Central Electric Power Co-operative, Columbia, S. C. Bids June 27. CD 7/3.

† **Cherokee, Inc.**, Sumter Hy., Columbia, S. C. Contract Awarded, $262,525, paving streets and parking areas, Eng 09-133-51-111, FORT JACKSON, S. C., U. S. Eng., Post Office Bldg., Savannah, Ga. Bids June 20. CD 6/6.

▲ **GEORGIA**—State Hy. Dpt., Atlanta, Ga.,
T. D. Lamb, Jr., Vidalia, Ga. Contract Awarded. $94,015, grading, base, surf. tr. 0.391 mi. Metter to Union School Rd., SAP No. PR 912 (6), Candler Co.; $103,160, surf. tr. 26.6 mi. county roads, SAP No. PR 69-C (1), Baldwin Co.; $80,894, surf. tr. 6.796 mi. Claxton to Camp Stewart Rd., SAP No. 1738-A (2), Evans Co.

MacDougald-Warren, Inc., 1650 Northside Dr. Atlanta, Ga., $66,342, wid'n. pavement 1.505 mi. S. R. 160 in Forrest Park from S. R. 54 to west city limits of Forrest Park, SAP No. 1839 (4), Clayton Co.

Shepherd Constr. Co., Inc., 1800 Brairciff Rd., N. E., Atlanta, Ga., $95,529, resurf. 13.74 mi. Dawson to Albany Rd., SAP-MAIN. 1887 (4), Terrell, Lee and Dougherty Counties.

J. B. Gibson Constr. Co., Donaldsonville, Ga., $78,621, base, surf. tr. 4.9 mi. Jakin to Lucile Rd., from S. R. 38 in Jakin and ends at S. R. 39 at Burketts Store, SAP No. 1226 (1), Early Co.

Claussen-Lawrence Constr. Co., Augusta, Ga., $203,347, wid'n. resurf., 0.958 mi. present pavement in Darien on the Darien to Midway Rd., approx. 700 ft. north of Darien River bridge, exten. north to city limits FAP No. FI 009-2 (1), McIntosh Co.

R. T. Smith, 1039 E. Ponce De Leon Ave., Atlanta, Ga., $810,524, grading, paving 9.99 mi. Conyers to Covington Rd., FAP No. FI-046-1 (1), Rockdale and Newton Counties.

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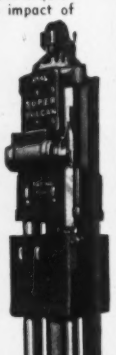

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G. L. Strickler, Austell, Ga., $77,128, wid'n. resurf. 0.857 mi. Powder Springs St. in Marietta, SAP No. 1671 (6), Cobb Co.

Hatcher & Morrow, Crawfordville, Ga., $67,987, base, surf. tr. 5.601 mi. State Rt. 47, SAP No. 1691-D (1), Jefferson Co.

Tanner Constr. Co., Douglas, Ga., $71,829, base surf. tr. 0.559 mi. Louise St. in Bainbridge, from S. R. 97 to S. R. 1, base, surf. tr. 0.67 mi. Sims St. in Bainbridge, from S. R. 97 to S. R. 38, SAP No. PR-1353 (1), Decatur Co.

R. A. Bowen, Bibb Bldg., Macon, Ga., $77,872, base surf. tr. 6.67 mi. Shellman to Morgan Rd., SAP-1547-B (4), Randolph Co.

Ledbetter-Johnson Co., Rome, Ga., $84,783, grading, paving removing slides 0.509 mi. Lafayette to Trenton Rd, SAP 1062-B (4), Dade Co.

W. L. Cobb Constr. Co., Masonic Temple Bldg., Decatur, Ga., $125,136, grading, paving 4.237 mi. Camak to Cedar Rock Rd. FASP No. S-1096 (1), Warren Co. Bids June 29. CD 6/21.

▲ Dixie Constr. Co., 747 Wheaton St., Savannah, Ga. and Robert Lee, Inc., Manning, S. C., Low Bidder, $819,913. site preparation for port facilities; Byck Worrell Constr. Co., 318 E. Bay St., Savannah, Ga., $1,435,985, building for port facilities, SAVANNAH, GA. Georgia Ports Auth., 20 Ivy St. S. E., Atlanta, Ga. Bids July 10. CD 6/11.

† Chicago Bridge & Iron Co., Healey Bldg., Atlanta, Ga. Contract Awarded. $536,900. Furnishing, installing concrete work, steel welded tank to roof supports for Naval Bulk Petroleum fuel terminal, JACKSONVILLE, FLA. Sixth Naval Dist., Naval Base, Charleston, S. C. CD 12/26.

† Hillyer & Lovan, Inc., 666 Dyal St., Jacksonville, Fla. Contract Awarded. $271,800. compressed air sys. alterations, addns., JACKSONVILLE, FLA. OIC, U. S. Naval Air Station, Jacksonville, Fla. CD 12/26/50.

▲† Smith Engineering & Constr. Co., West Pensacola, Fla. Low Bidder. $6,691,163. preliminary constr. Navy Jet Air Base near Fort Barrancas, PENSACOLA, FLA. Sixth Naval Dist., Box 365, Naval Base, Charleston, S. C. Bids June 28. CD 6/15.

† Vandigriff Constr. Co., 4708 N. Court St., Montgomery, Ala. Contract Awarded. $156,486. resurf. roads, CAMP RUCKER, ALA. Purchasing & Contracting Office, Camp Rucker, Dothan, Ala.

▲ LOUISIANA—State Hy. Dpt., Highway Office Bldg., Baton Rouge.

T. L. James & Co., Inc., Ruston, La., Contract Awarded, $936,691, c. conc. 9.998 mi. Gramercy Bonnet Carre Hy., State Rte. C-1500, S.P. 7-04-07, 7-03-16, F. A. Proj. 172, St. John and St. Charles Parishes, Awarded July 5; $975,197, grading, girder span bridge, underpass structure Stonewall Keithville Hy., State Rte. 1, S.P. 25-08-08, F. A. Proj. 68 (80), Caddo Parish, Awarded June 28. CD 6/21 and 6/25.

† U. S. Eng., 303 U. S. Court House, Nashville, Tenn. rejected bids June 28, hangar and misc. buildings at McGhee-Tyson Air Force Base, KNOXVILLE, TENN. L. B. $714,000. CD 7/6, under LB.

▲ TENNESSEE—State Hy. Dpt., Nashville.

Griffitts-Bell Paving Co., 316 Gay Bldg., Ave., N. W., Knoxville, Tenn. Low Bidder, $103,835, crushed stone surf. 4.361 mi. sect. Secondary Route No. 2421 from Pittman Center towards Sevierville to near Richardson Cove, Proj. No. S-2421-(2), Sevier Co.; $145,107, crushed stone surf. 3.251 mi. sect. Secondary Route No. 2422 from Blount Co. line east of Townsend to Sevierville, Proj. No. S-2422 (2), Sevier Co., $477,746, bit. materials widn., resurf. 7.524 mi. sect. State Route 71 from Knoxville city limits to Sevierville to Sevier Co. line, Proj. No. SAP 921-A, Knox Co.

B. G. Young & Sons, Johnson City, Tenn., $74,151, crushed stone surf. 7.882 mi. sect. Secondary Route No. 2419 from Cedar Bluff east of Sevierville towards Cosby, Proj. No. S-2419 (2), Sevier Co.

Forcum-James Co., Dyersburg, Tenn., $65,371, grav. and bit. materials widn., resurf., construct curb and gutters and storm drainage 0.5 mi. Elm St. and sect. of Church St. on State Route 21 in Tiptonville, Proj. No. SAMP-202-A, Lake Co.

Boyer & Johnson, Jackson, Tenn., $65,102, grav. and bit. materials widn. and resurf., construct curb and gutter and storm drainage 0.881 mi. sect. Main and Poplar St. from the south city limits and extending to State Route 78 in Ridgely, Proj. No. SAMP 201-A, Lake Co.

Gallatin Paving Co., Hartsville, Tenn., $121,673, scarrify, base, drain, prime, B.R. M. S., S.B.S.T. 7.06 mi. from Ooltewah to Mahon. Proj. No. R-5170 (1); grade, drain, base 6.42 mi. from 10.4 mi. N. Ooltewah to Rt. 60 at Georgetown, Proj. R-5170 (2); shoulder, B.R. M.S. or A.C.S.C. 2.1 mi. from Rt. 29 to Pineville Rd. Proj. No. R-5154 (1); shoulder, BR. M.S. or A.C.S.C. 0.67 mi. from Rt. 29 (White Oak) to Chattanooga, Proj. R-5145 (1); shoulder, scarrify, base, D.B.S.T. 8.2 mi. from Rt. 29 to Bledsoe Co. line, Proj. R-5108 (1); shoulders, prime, B.R. M.S. or A.C.S.C. 1.54 mi. from N. Chickamauga Creek to Cassanda Smith Rd. Proj. R-4306 (5), Hamilton Co.

Foster, Adler & Wright, Fayetteville, Tenn., $65,125, grade, drain, 2.95 mi. from Rt. 50 to S. A.P. 7532, Proj. R-7332 (1); grade, drain 4.8 mi. S.A.P. 7532 to S-4280, Proj. R-7333 (1), Marshall Co.

A. B. Long Const. Co., Harriman, Tenn., $112,288, crushed stone surf. 4.885 mi. sect. State Route 1 from Rockwood to point 0.4 mi. east of junction of State Rt. No. 29. Proj. No. SAP-920-A, Roane Co.

Gatlinburg Constr. Co., Gatlinburg, Tenn., $64,143, grade, drain, base, scarrify, 6.35 mi. from Rt. U. S. 11W to Tar Pine Valley, Proj. No. F-3308 (1), Hawkins Co.

L. & M. Constr. Co., 843 Vance Ave., Memphis, Tenn., $143,298, shoulder, base, drain, D.B. S.T. 4.17 mi. from Millinton-Arlington Rd. to U. S. 51, Proj. R-9463 (1); shoulder, base, drain, D.B. D.T. 3. mi. from Rt. 14 to Millinton-Arlington Rd., Proj. R-9359 (1), Shelby Co.

J. B. Michael & Co., 1021 Heywood St., Memphis, Tenn., $162,112, shoulder, base, prime, D.B.S.T. 4.45 mi. from U. S. 51 to Locke-Cuba Rd. Proj. F-9330 (2), shoulder, base, prime, D.B. S.T. 4.95 mi. from Forest Rd. to Cuba-Millington Rd., Proj. R-9027 (2); $660,661, grading, drainage paving and construct 2 bridges for grade separations on sect. of State Rt. 1 in Knoxville from Linaka St. and Euclid Ave to Tulip Ave., Proj. No. UI-001-7-(25), Knox Co.

McDowell & McDowell, 699 Murfreesboro Rd., Nashville, Tenn., $167,757, grading, drainage, exten. 2 box type bridges, surf. with chert 1.4 mi. sect. State Rt. 1, from Sawyers Mill to 1.4 mi. west of Camden, Proj. FI-001-3-(18), Benton Co.; $62,786. grav. or chert and bit. materials widn., construct concrete sidewalks, concrete curbs, gutters, storm sewerage sys. 0.382 mi. sect. State Hy. 22 in Dresden from intersection of Pikeview and Main Sts. to intersection of Locust St. and Minden Ave., Proj. No. SAMP-126-B, Weakley Co.

Malone Bros., Greenville, Tenn., $172,176, crushed stone surf. and bit. materials 9.207 mi. sect. Secondary Rt. 2418 from Newport southward to Denton, Proj. S-2418 (1), Cocke Co.

Anderson-Gregory Co., Inc., Cotton States Bldg., Nashville, Tenn., $416,354, crushed stone surf., 6.111 mi. sect. State Hy. 2 from Riceville to State Rt. 30 north of Athens, Proj. No. FI-002-3-(17); crushed stone surf. 3.992 mi. sect. of State Rt. 2 from State Rt. 30 north of Athens northward towards Sweetwater, Proj. No. FI-002-4-(5), McMinn Co.; $126,452, crushed stone surf. 4.797 mi. sect. Secondary Route 6162, Proj. No. S-6162-(3), Putnam Co.

R. B. Tyler Co., 1446 Levering St., Louisville, Ky., $139,146, base, prime, S.B.S.T. 6.8 mi., from R-9013 to Rt. 54, Proj. R-9058 (1); base, prime S.B.S.T. 6.55 mi. from Milan to Gann School, Proj. No. R-9053 (2); base, prime, S.B.S.T. 6.6 mi. from Rt. 77 to Rt. 43, Proj. R-9056 (2), Gibson Co.

cancelled bids to have been opened July 6, B.R.M.S. and H.B.S.C. or A.C.S.C. 9.2 mi. from Rt. 34 to Bailey Bridge Rt. 107, Proj. R-3458 (1), Washington Co. Bids July 6. CD 6/14 and 6/23.

BUILDINGS

LOW BIDS AND CONTRACTS

▲† Virginia Eng. Co., Newport News, Va. Low Bidder, $2,451,000. FIRE CONTROL and GUNNERY INSTRUCTION BLDGS. at Fleet Air Defense Training Center, NOY, 28432, DAM NECK, VA. Fifth Dist. Pub. Wks. Office, Norfolk, Va. Bids July 3. CD 6/4.

▲ Bush Constr. Co., Flat Iron Bldg., Norfolk, Va., Contract Awarded, $3,797,000. HOUSING Proj. VA6-7, NORFOLK, VA. Norfolk Redevelopment & Housing Auth., Dickson Bldg., Norfolk, Va., Bids June 19. CD 6/28, under LB.

▲ Norfolk Redevelopment & Housing Auth., Dickson Bldg., Norfolk, Va., rejected bids, June 6. HOUSING Proj. VA 6-4, NORFOLK, VA. L. B. $1,492,000. CD 6/15; under LB.

▲ Wm. Muirhead Constr. Co., Box 2012, Durham, N. C. Contract Awarded. $3,899,000. HOUSING project, VA 1-4, PORTSMOUTH, VA., Portsmouth Redevelopment & Housing Auth., c/o contractor. Bids June 12. CD 5/19.

T. A. Loving Co., Bank of Wayne Bldg., Goldsboro N. C. Contract Awarded. $717,850. 4 story, 97x170 ft., STUDENT UNION bldg., RALEIGH, N. C. North Carolina State College, J. G. Vann, bus. mgr., Raleigh, N. C. Bids June 28. CD 7/5, under LB.

▲ Artley Co., 504 E. Bay St., Savannah, Ga. Contract Awarded. $2,200,000. 216 unit bldg. low rent HOUSING, CHARLESTON, S. C. Charleston Housing Auth., 20 Franklin St., Charleston, S. C. Bids June 12. CD 6/19, under LB.

† M. B. Kahn Constr. Co., Blossom St., Columbia, S. C., Contract Awarded, $682,335, rehabilitation company type KITCHENS, FORT JACKSON, S. C. Purchasing & Contg. Office, Fort Jackson, S. C. Bids June 27. CD 7/6, under LB.

▲ Daniel Constr. Co. of Alabama, Inc., 822 7 Ave. S., Birmingham, Ala. Contract Awarded. $1,306,975. women's DORMITORY, AUBURN, ALA. Alabama Polytechnic Institute, Auburn, Ala. CD 7/2, under LB.

R. J. Allen Contg. Co., 2400 Bessmer Rd., Birmingham, Ala. Contract Awarded. $556,485. 80 HOUSING units, CULLMAN, ALA. Cullman Housing Auth., Cullman, Ala. Bids July 2.

Pittman Constr. Co., 2925 Franklin Ave., New Orleans, La. Contract Awarded. $864,876. 4 story newspaper PLANT, BATON ROUGE, LA. Capitol City Press, c/o Bodman & Murrell, archts. 1175 Nicholson Dr., Baton Rouge, La. Awarded July 5. CD 7/10, under LB.

Turner Constr. Co., 420 Lexington Ave., New York, N. Y. and Struck Constr. Co., 147 N. Clay St., Louisville, Ky. Contract Awarded. Total est. $14,000 000. Appliace Park PLANT to mfg. jet aircraft parts at Buechel, LOUISVILLE, KY. General Electric Co., River Rd., Schenectady, N. Y. CD 5/23.

▲ Foster & Creighton Co., American Natl. Bank Bldg., Nashville, Tenn. Low Bidder, $2,555,900. Howard HIGH SCHOOL, CHATTANOOGA, TENN., City, City Hall, Chattanooga, Tenn. Bids July 5. CD 6/29.

MIDDLE WEST

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES
July 31 Wisconsin
STREETS AND ROADS
July 31 Wisconsin

(Continued on page 120)

West 43rd Street, built in 1924. Upper photo taken in 1927, lower photo in 1949

Spencer Avenue, built in 1922. Upper photo taken in 1923, lower photo in 1949

Here today – *and still here tomorrow*

that's the story of Indiana's *CONCRETE* streets

DURING THE 1920's Indianapolis paved the four concrete streets illustrated here. Having given a generation of dependable, ***low-annual-cost*** service, they are still in excellent condition today and good for many more years.

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Concrete also is the safety pavement. In wet or dry weather concrete's gritty texture affords uniformly high skid resistance. At night concrete's light color reflects more light than other pavements, thus improving visibility and reducing accidents.

Concrete pavement is economical too. For all but lighter traffic it usually costs less to build than other pavements of equal load-carrying capacity. It costs far less to maintain and it lasts much longer. All that adds up to ***low annual cost,*** the true measure of pavement economy. And concrete's high light reflectance cuts street lighting costs as much as 50%.

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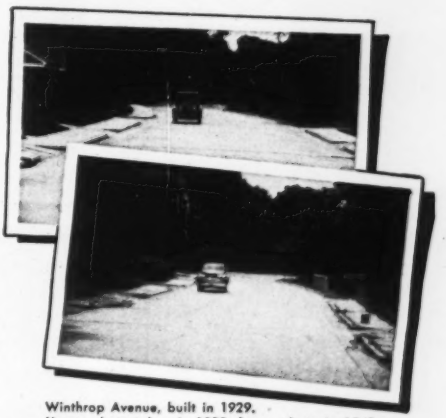
Arlington Avenue, built in 1929. Upper photo taken in 1929, lower photo in 1949



Winthrop Avenue, built in 1929. Upper photo taken in 1929, lower photo in 1949

PORTLAND CEMENT ASSOCIATION

DEPT: A7C-17 33 WEST GRAND AVENUE, CHICAGO 10, ILLINOIS

A national organization to improve and extend the uses of portland cement and concrete through scientific research and engineering field work

(Continued from page 118)

† Ill., Rantoul—DORMITORIES—B.A. 7/24—Dpt. Air Force, The Pentagon, Wash. D. C., 7 dormitories, 1 mess hall, 1 administration bldg., Chanute Air Force Base. $750,000. Plans deposit $100. CD 3/28.

▲† O., Dayton—PROPELLER TEST BLDG.—B.A. 7/24—U. S. Eng., 830 W. Broadway, Louisville, Ky., propeller test bldg., Wright Field $1,000,000. Plans deposit $15. CD 11/21.

▲ Ind., Churubusco—B.A. 7/28—Town, Bd., Harry Kugler, secy., WW sys., deep wells, pumping station, pumps, mains, $7,000,000. Plans deposit $10, N. F. Zurbuch, 202 Paramount Bldg., Fort Wayne, engr.

BIDS ASKED—BUILDINGS

Mich., Boyne City—STEAM PLANT—B.A. 7/25—Northern Michigan Electric Co-operative, Boyne City, Sect. 7, electrical work for advance steam plant, Stanley Eng. Co., Hershey Bldg., Muscatine, Ia., engr. CD 12/29/49.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ Illinois—Dpt. P. Wks. & Div. Hys., Centennial Bldg., Springfield, Ill.,

Chatham Paving Co., 8452 S. State St., Chicago 19, Ill., Low Bidder, $185,984, 0.97 mi. bit. resurf. Ill No. 167, Cook Co.

Rockford Black Top Constr. Co., 1615 Westchester Rd., Rockford, Ill. $68,535 bit. surf. tr. 10.43 mi. Ill No. 51 and 88 Ogle Co.

H. H. Hall Constr. Co., 211 S. 15 St., East St. Louis, Ill., $77,107, c. conc pavement 0.4 mi. Alt. U.S. 67 and Ill. No. 111, Madison Co.

S. M. H. Constr. Co., 1500 N. Adams St., Peoria 3, Ill., $162,826 wid'n. 12.25 mi. Ill. No. 104, Adams Co.

O'Connor Constr. Co., 320 Reisch St., Springfield, Ill., $789,459, c. conc. 4.27 mi. U. S. 66, Sangamon Co.

George Welch, Hotel Sherman, Chicago, Ill., $313,715, c. conc. pavement and wid'n. 12.55 mi. U. S. 24, Woodford Co. Bids July 6. CD 6/22.

Owens-Ames-Kimball Co., 38 Pearl St., Grand Rapids, Mich. Contract Awarded. $697,314. Sect. 6C, superstructure for advance steam plant; Gallaher & Speck, 546 W. Harrison St., Chicago, Ill., $290,000, Sect. 8, mechanical work for steam plant, BOYNE CITY, MICH., Northern Michigan Electric Co-operative, Boyne City, Mich. Bids June 27. CD 5/25.

† Douglas-Cloud Co., 1017 Penobscot Bldg., Detroit, Mich. Contract Awarded. $136,850. alert hangar Selfridge Air Field, SELFRIDGE AIR FORCE BASE (BR. MOUNT CLEMENS), MICH. U. S. Eng., 2015 Cadillac Tower, Detroit 26, Mich. CD 3/28.

BUILDINGS

LOW BIDS AND CONTRACTS

▲† George Sheath, 449 Niel St., Columbus, O. Low Bidder. $1,300,000. General purpose WAREHOUSE, DAYTON, O. U. S. Eng., 830 W. Broadway, Louisville 3, Ky. Bids June 26.

▲ Morgan Eng. Co., Alliance, O. Contract Awarded, BLOOMING MILL***United Eng. & Foundry Co., 948 Duquesne St., Pittsburgh, Pa. COLD ROLL UNIT*** John Mohr & Son, 3200 E. 96 St., Chicago, Ill., 1,400 ton blast furnace***Patterson, Emerson & Comstock, 3131 E. Carson St., Pittsburgh, Pa., HOT STRIP MILL or STEEL MILL addn., PORTSMOUTH, O., Detroit Steel Corp., 1025 S. Oakwood St., Detroit, Mich. Total cost $50,000,000. CD 2/12

▲ Hagerman Constr. Co., 402 E. Superior St., Fort Wayne, Ind. Contract Awarded. $1,885,810. General constr. 2 story bsmnt., brick, stone, rein.-conc. HIGH SCHOOL, Madison Ave. and Pleasant Run Blvd.; Freyn Bros., 1028 N. Illinois St., Indianapolis, Ind., $770,359, plumbing, ventilating, sewer work, INDIANAPOLIS, IND. Bd. School Comrs., V. M. Bailey, bus. dir., 150 N. Meridian St., Indianapolis 4, Ind. Bids June 12. CD 5/9.

▲ Kridehler Homes Development Co., Inc., c/o C. W. Marshall, archt., 53 W. Jackson St., Chicago 4, Ill. Owner Builds. $1,200,000. 100 RESIDENCES, NAPERVILLE, ILL.

Palmer Smith Co., 514 Brainard St., Detroit, Mich. Contract Awarded. $500,000. brick, steel, limestone telephone BUILDING addn., Martin St., BIRMINGHAM, MICH., Michigan Bell Telephone Co., 1165 Cass St., Detroit, Mich. Smith, Hinchman & Grylls, 800 Marquette Bldg., Detroit, Mich., archts.

Avison-Purcers Constr. Co., 17605 James Couzens, Detroit, Mich. Owner Builds. $720,000. 60 brick HOUSES, residential development, BIRMINGHAM, MICH.

▲ The Austin Co., 510 N. Dearborn St., Chicago 10, Ill. Contract Awarded. $3,000,000. design and construct steel, concrete brick, 200,000 sq. ft. FACTORY, BUCHANAN, MICH. Clark Equipment Co., Buchanan, Mich. CD 3/30.

Spence Brothers, 417 McCoskry St., Saginaw, Mich. Contract Awarded. $682,850. 2 story, concrete INFIRMARY at Caro State Hospital, CARO, MICH. State, A. N. Langius, dir. State Bldg. Dpt., Lansing, Mich., Bids June 27. CD 6/20.

Campbell Constr. Co., 3255 Goldner St., Detroit, Mich. Contract Awarded. $295,000. brick, concrete TEST TRACK ENCLOSURE, DEARBORN, MICH. Ford Motor Co., 3000 Schaefer St., Dearborn, Mich. CD 6/7/46.

Albert A. Albrecht Co., 1217 Penobscot Bldg., Detroit, Mich. Contract Awarded. $389,700; 1 story, cement blocks, steel WAREHOUSE and GARAGE, 14255 Dequindre St., DETROIT, MICH. Vlasic & Co., 2266 Hendrie St., Detroit, Mich. T. H. Jahr & Assoc., Inc., 21904 Michigan Ave., Detroit, Mich., archts.

▲ O. W. Burke Co., 1032 Fisher Bldg., Detroit, Mich. Contract Awarded. $1,698,400. caisson work and substructures for 14 and 20 story, bsmnt., subbsmnt., City-County BUILDING, DETROIT, MICH. City-County Joint Bldg. Auth., Mayor Albert E. Cobo, chm., Detroit, Mich. CD 7/3, under LB.

A. W. Kutsche Co., 2924 W. Grand Blvd., Detroit, Mich. Contract Awarded. $500,000. 2 story, bsmnt., brick, steel, stone high SCHOOL, DETROIT, MICH. Austin Catholic High School, c/o Smith, Hinchman & Grylls, archts., 800 Marquette Bldg., Detroit, Mich. Bids May 16. CD 5/7.

WEST OF MISSISSIPPI

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES
July 27 Kansas
STREETS AND ROADS
July 24 Iowa July 27 Kansas

BIDS ASKED—BUILDINGS

† Colorado—DISTRIBUTION BOARD—B.A. 7/26—Bureau Reclamation, Dpt. Interior, Bldg. 10-A, Denver Federal Center, Denver, station service power distr. board, station service transformers, battery chargers for Pole Hill Power Plant, Colorado-Big Thompson Proj., Inv. No. DS-3465. Extended date. CD 6/28.

Wyo., Worland—SCHOOL—B.A. 7/26—Bd. Educ., grade school $375,000. E. G. Osness & V. L. Drake, Billings, archts. CD 6/5.

▲ Tex., Lubbock—NURSES HOME and HOSPITAL—B.A. 8/2—Lubbock Memorial Hospital, Lubbock, masonry nurses home, concrete pier and beam fdn., steam heating, etc., $450,000; 8 story, bsmnt., hospital, concrete pier and beam fdn., $2,500,000. Haynes & Kirby, 19 St. and Dixie Dr., engr. and archts. CD 12/29/49.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

MINNESOTA—State Hy. Dpt., 1246 University Ave., St. Paul,

J. Dieseth Co., Fergus Falls, Minn. Low Bidder. $687,819. C. conc. plant-mixed bit. surf. 5.4 mi. in Grand Rapids and between Grand Rapids and 2.6 mi. east, Itasca Co. Bids June 29. CD 6/14.

SOUTH DAKOTA—State Hy. Comn., Pierre,

England & Roth Constr. Co., Rapid City, S. D., Contract Awarded. $246,778, service grav. 1.888 mi. Proj. FI 30 (5), Brule Co.

Pat DeSart, Mobridge, S. D., $65,950, grading 8.868 mi. Proj. S 426 (2) Campbell Co.

W. H. Noel Co., Jamestown, N. D., $156,071, bit. surf. 10.146 mi. Proj. F 461 (2), Potter Co., $118,539, base course 10.146 mi. Proj. F 61 (2), Potter Co.

The Haggart Constr. Co., 667 2nd Ave. N., Fargo, N. D., $182,055, bit. surf. 11.975 mi. Proj. F 461 (4) and F 37 (3), Potter and Faulk Counties; $128,445, base course 11.975 mi. Proj. F 461 (4) and F 37 (3), Potter and Faulk Counties.

Peter Kiewit Sons Co., 1024 Omaha Natl. Bank Bldg., Omaha, Neb., $98,483, base course and seal 7.113 mi. Proj. S 131 (3), Lawrence Co. Grand total $994,249. Bids June 14. CD 6/4.

▲† American Bridge Co., First Natl. Bank Bldg., Denver, Colo. Contract Awarded, $4,178,114. galvanized-steel double circuit towers and appurtenances for Oahe-Fort Randall-Sioux City 230 kv transmission lines, Missouri River Basin Proj., Transmission Div., Spec. DS 3391, SOUTH DAKOTA. Bureau Reclamation, Dpt. Interior, Bldg. 1A, Denver Federal Center, Denver, Colo. Bids June 11, Awarded June 29. - CD 6/19, under LB.

Zontelli Bros., Ironton, Minn. Low Bidder. $381,699. 99.3 mi. rural distr. lines, Lake Co., SOUTH DAKOTA. East River Electric Power Co-operative, Madison, S. D. Bids June 29. CD 6/25.

† Davies Constr. Co., Aberdeen, S. D. Low Bidder, $456,300, photo technical laboratory at Rapid City Air Force Base, Inv. 69, near Weaver, RAPID CITY, S. D. U. S. Eng., 1709 Jackson St., Omaha, Neb. Bids July 6. CD 6/7.

† H & B Constr. Co., Rapid City, S. D. Contract Awarded. $582,959, readiness building, hangar at Rapid City Air Force Base, Inv. 63, near Weaver, RAPID CITY, S. D., U. S. Eng., 1709 Jackson St., Omaha, Neb. Bids June 15. CD 6/27, under LB.

NEBRASKA—State Dpt. Roads & Irrigation, Lincoln, George K. Werner & Son, Clay Center, Neb. Low Bidder, $110,020, prep. of roadbed, armor and bit. mat., SG-8610(1) and 2—Butte-Bristow and Butte South. Bids June 28. CD 6/20.

Jim Wells Co., Alice, Tex. Own Forces. $85,000. reconstruction, imprv. approx. 11 mi. road northwest of town; $65,000, imprvs., inside city limits of certain streets through the town, ALICE, TEX. CD 6/16/47.

San Jacinto Equipment Co., 7107 Girard St., Houston, Tex. Low Bidder, $168,887, est. $480,000. 24- to 42-in. sanitary sewer pipe, South Trunk, Sect. 3, HOUSTON, TEX. W. E. White, Houston, Tex. city engr. Bids June 28. CD 4/19.

City Public Service Board, 201 N. St. Mary's St., Force Account. $150,000. addnl. unit of street lighting sys., SAN ANTONIO, TEX.

† Long Constr. Co., Inc., Billings, Mont., Low Bidder, $120,985, est. $94,761, earthwork, asph. membrane lining and structures for C-J Coulee crossing relocation with monolithic-concrete siphon; $117,790, est. $92,324, with concrete bench flume, Shoshone Proj., Spec. DC 3453, WYOMING. Bureau Reclamation, Dpt. Interior, Cody, Wyo. Bids June 28.

BUILDINGS

LOW BIDS AND CONTRACTS

Naugle-Leck, Inc., 714 Baker Bldg., Minneapolis, Minn. Contract Awarded. $525,397. Minnehaha Grade SCHOOL, HOPKINS, MINN. Bd. Educ., W. W. McQueen, clk., Hopkins, Minn. CD 7/3 under LB.

W. Baumeister Constr. Co., 635 Hamm Bldg., St. Paul, Minn. Contract Awarded. $866,443. high SCHOOL, remodel parts of Junior High SCHOOL, WEST ST. PAUL, MINN. Bd. Educ., C. R. Edstrom, clk., West St. Paul, Minn. Bids June 29. CD 12/29/50.

▲ Lowe Hollow Limestone Co., Batesville, Ark. Day Labor. $1,000,000. limestone PLANT, BATESVILLE, ARK.

M. A. Garland Constr. Co., Rapid City, S. D. Contract Awarded, $611,500. general constr. HOSPITAL, RAPID CITY, S. D. Bennett Memorial Hospital, Rapid City, S. D. Bids June 12. CD 6/7.

Nordberg Engine Mfg. Co., 3073 S. Chase Ave., Milwaukee, Wis. Contract Awarded. $409,075, engine for power and light exten. and PLANT imprvs., SIDNEY, NEB. City, Sidney, Neb. Bids July 6. CD 6/27.

Walter Butler Constr. Co., Inc., 1300 Minnesota Bldg., St. Paul, Minn. Contract Awarded. Approx $600,000. general constr. 1 and 4 story HOSPITAL addn., HUTCHINSON, KAN. St. Elizabeth's Hospital, Hutchinson, Kan. CD 5/31.

J. M. Odom, Box 774, Austin, Tex. Contract Awarded. $798,739, est. $375,000. brick, hollow tile Maplewood SCHOOL addn., concrete pier and beam fdn., AUSTIN, TEX. Austin Independent School Dist., Austin, Tex. Bids June 14, awarded July 7. CD 6/20, under LB.

FAR WEST

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES
August 2 California
STREETS AND ROADS
August 1 California

BIDS ASKED—BUILDINGS

Calif., Atascadero—INSTITUTION—B.A. 7/31—State Div. Architecture, P. Wks. Bldg., Sacramento, plumbing, heating, air conditioning, refrigeration at Max Security Institution. Plans deposit $200. CD 4/5.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ Marshall, Haas & Royce, Belmont, Calif. Contract Awarded. $1,719,349, est. $1,660,733. earthwork, canal lining, and structures for Mohawk Canal. Station 1547 plus 91.63 to 2056 plus 74.12 and Tyson protection dike and outlet channel, Gila Proj., Spec. DC 3375, ARIZONA. Bureau Reclamation, Dpt. Interior, Bldg. 1A, Denver Federal Center, Denver, Colo. Awarded June 29. CD 7/3 under LB.

▲† Vincent Constr. Co. and Harold Ashton Building Co., 2025 E. 22 St., Tucson, Ariz. Contract Awarded. $1,097,891, est. $1,000,000. Bulk storage and fuel sys., Davis-Monthan Air Force Base, Eng. 64-353-5198, TUCSON, ARIZ. U. S. Eng., 751 Figueroa St., Los Angeles, Calif. CD 7/3, under LB.

† Pieler Constr. Co., Shafer Bldg., Seattle 1, Wash. Contract Awarded. $846,675, est. $912,800. extend runway at Paine Field Air Base, Inv. 51-200, EVERETT, WASH. U. S. Eng., 4735 E. Marginal Way, Seattle 4, Wash. CD 7/5 under L.B.

† MacRae Bros., 2733 4 Ave. S., Seattle, Wash. Contract Awarded. $764,349. addnl. aviation fuel storage facilities at Naval Supply Depot, Spec. 29289, MANCHESTER, WASH. Pub. Wks. Officer, 13th Naval Dist., 1601 W. Wheeler St., Seattle, Wash. CD 7/5 under LB.

▲† Dahlgren Constr. Co., 2016 30 Ave. S. Seattle, Wash. Contract Awarded. $1,429,791, est. $1,697,374. bulk petroleum storage facilities, Eng. 45-108-51-186, MUKILTEO, WASH. U. S. Eng., 4735 E. Marginal Way, Seattle 4, Wash. CD 7/5, under L.B.

† Haskell P. & H. Co., Everett, Wash. Contract Awarded. $171,516. reolace steam and condensate distr. lines at Naval Air Station Spec. 29294, WHIDBEY ISLAND, WASH. Pub. Wks. Officer, 13th Naval Dist., 1611 W. Wheeler St., Seattle, Wash. Bids June 27.

▲ CALIFORNIA—State Div. Hys., Sacramento, Calif., Piombo Constr. Co., 1571 Turk St., San Francisco, Calif. Contract Awarded. $1,212,424. Grouted rock toe walls, etc. 17.7 mi. between Briceburg and Yosemite National Forest, Mariposa Co. Bids June 20, awarded June 29. CD 7/2, under LB.

CALIFORNIA—State Div. Hys., P. Wks. Bldg., Sacramento, Calif.,

Hess Constr. Co., 1605 Lovell Ave., West Arcadia, Calif. Contract Awarded. $761,903. 4.6 mi. grading, etc. between 4.5 mi. northwest of Isabell and Isabella Dam site, Kern Co. Bids June 20, awarded July 3. CD 7/2, under LB.

▲† Stolte, Inc., 8451 San Leandro St., Oakland, Calif. and Gallagher & Burk, Inc., 344 High St., Oakland, Calif. Contract Awarded. $3,235,031. First increment, runway, taxiway, etc. at U. S. Naval Air Station, Spec. 29623, ALAMEDA, CALIF. P. Wks. Office, Twelfth Naval Dist. Federal Office Bldg. Civic Center, San Francisco, Calif. Bids June 19, awarded July 2. CD 6/6.

▲† **Monson Bros.**, 475 6th St., San Francisco, Calif. Contract Awarded. $2,765,000. Const. engine overhaul bldg. and other utilities at U. S. Naval Air Station, Spec. 29624. ALAMEDA, CALIF. Twelfth Naval Dist., Federal Office Bldg. San Francisco, Calif. Awarded July 2. CD 7/9, under LB.

† **George W. Carter Co.**, 1721 W. Olympic Blvd., Los Angeles, Calif. Contract Awarded. $538,711. Test range bldgs. and facilities at Randsburg Wash Test Range, Spec. 29070. INYOKERN, CALIF. Constr. Office, Bldg. 981, Naval Ordnance Test Station, Inyokern, Calif. Bids May 31, awarded July 3. CD 5/22.

▲† **Fred J. Early, Jr. Co., Inc.**, 369 Pine St., San Francisco. **Ball & Simpson**, 685 Delaware St., Berkeley, **Harms Bros.**, 5261 Stockton Blvd., Sacramento, and **H. Earl Parker, Inc.**, Marysville, Calif. Contract Awarded. $3,857,522, aviation gas facilities, grade and pave runways, Castle Air Force Base, MERCED, CALIF. U. S. Eng., 180 New Montgomery St., San Francisco, Calif. Awarded July 2.

▲† **Guy F. Atkinson Co.**, 10 W. Orange Ave., South San Francisco, Calif. Contract Awarded. $1,846,840. Extended runways, taxiways, etc. at U. S. Naval Air Station, Spec. 29629. MOFFETT FIELD, CALIF. Twelfth Naval Dist., Federal Office Bldg., San Francisco, Calif. Bids June 19, awarded July 2. CD 7/2, under LB.

▲† **Guy F. Atkinson Co.**, 10 W. Orange Ave., South San Francisco, Calif. Contract Awarded. $1,512,830. Construct repairs, etc. to garage and supply warehouse at Naval Air Station, Spec. 29630. MOFFETT FIELD, CALIF. Twelfth Naval Dist., Federal Office Bldg., San Francisco, Calif. Bids June 21, awarded July 2. CD 7/2, under LB.

▲† **AL-CO Co.**, 5423 Flemish Village Lane, Los Angeles, Calif. Contract Awarded. $2,428,358, enlisted mens barracks and missile project bldg., POINT MUGU, CALIF. U. S. Naval Air Missile Test Center, Point Mugu, Calif. Bids June 12, CD 6/19 under LB.

▲† **Erickson Constr. Co.**, 1119 Bassettlaw Ave., North Sacramento, Calif., and **Campbell Constr. Co.**, 800 R St., Sacramento, Calif. Contract Awarded. $5,000,000. Vehicle, power equipment shop and communications bldg., Spec. 1526, 1527, McClellan Air Force Base, SACRAMENTO, CALIF. U. S. Eng., Wright Bldg., Sacramento, Calif. CD 4/5.

† **Twelfth Naval Dist.**, Federal Office Bldg., San Francisco, Calif., rejected bids June 20, repairing Drydocks 2 and 3 at San Francisco Naval Shipyard, Spec. 29637, SAN FRANCISCO, CALIF. L. B. $935,528. CD 7/2, under LB.

▲† **MacDonald, Young & Nelson**, 351 California St., San Francisco, Calif. Contract Awarded. $1,515,861. Expansion station hospital, Travis Air Force Base, Spec. 1546, TRAVIS AIR FORCE BASE, CALIF. U. S. Eng., Wright Bldg., Sacramento, Calif. Bids June 25, awarded July 2. CD 7/3, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

† **M. Morrin & Sons**, 259 Harrisonville Rd., Ogden, Utah. Contract Awarded. $932,862. 1 and 2 story, 175x338 ft., concrete, steel SHOP, incl. 21 cranes, heating plant, standard gage track, etc., OGDEN, UTAH. Dpt. Army, Utah General Depot, c/o Purch. Agent, Ogden, Utah. Bids June 19. CD 6/5.

▲† **Dinwiddie Constr. Co.**, 210 Crocker Bldg., San Francisco, Calif. Contract Awarded. $1,854,755. mine assembly and EXPLOSIVE LOADING FACILITIES at Naval Ammunition Depot, NOY 27949, Spec. 29622. HAWTHORNE, NEV. Twelfth Naval Dist. Federal Office Bldg. Civic Center, San Francisco, Calif. Bids June 26. CD 6/14.

General Constr. Co., 3840 Iowa St., Seattle, Wash. Contract Awarded. $653,917. 3 story HOSPITAL addn., CHEHALIS, WASH. St. Helen's Hospital, Chehalis, Wash. CD 5/2 under L.B.

† **L. A. Hopkins**, Yakima, Wash. Contract Awarded. $713,576. three 33x58 ft. and one 33x37 ft. reinf.-con. masonry HEATING PLANTS, 25x130 ft. masonry PHONE BLDG., 47x60 ft. and 26x80 ft. frame FIRE STATION, etc. at training center, Inv. 51-193, YAKIMA WASH. U. S. Eng., 1519 E. Marginal Way, Seattle 4, Wash. CD 7/5, under L.B.

State Div. Architecture, P. Wks. Bldg., Sacramento, Calif., rejected bids June 26, electrical work at Atascadero State HOSPITAL, ATASCADERO, CALIF. L. B. $808,613. CD 7/6, under LB.

▲† **Stolte, Inc.**, 8451 San Leandro St., Oakland, Calif., **Fred J. Early Jr., Inc.**, 369 Pine St., San Francisco, Calif., and **M & K Corp.**, 351 California St., San Francisco, Calif. Contract Awarded. $5,843,253. 2 WAREHOUSES and convert a warehouse to a SHOP at Benicia Arsenal BENICIA, CALIF. U. S. Eng., 180 New Montgomery St., San Francisco, Calif. CD 4/5.

Kettler Knolls, Inc., 1800 W. Sepulveda Blvd., Torrance, Calif. Contract Awarded. $334,200. 46 unit, Low rent HOUSING, CALEXICO, CALIF. Calexico Housing Auth., 120 2 St., Calexico, Calif. Hanes Wallner, 8414 Otis Ave., South Gate, Calif., archt.

† **Viking Co.**, Box 8, Covina, Calif. Contract Awarded. $826,442. Renovate BARRACKS and MESS HALLS. Spec. 30830. Oceanside, CAMP PENDLETON, CALIF. Dept. Navy, Eleventh Dist., San Diego, Calif. CD 1/8.

Trewhitt-Shields & Fisher, 926 Parallel Ave., Fresno, Calif. Contract Awarded. $621,500. Junior HIGH SCHOOL bldgs., COALINGA, CALIF., Coalinga Union High School Dist., Coalinga, Calif. Bids June 11. Awarded July 3. CD 6/21, under LB.

O. L. Carpenter, 1102 Morena Blvd., San Diego, Calif., Low Bidder. $852,696, est. $300,000. administration and cafeteria at Helix HIGH SCHOOL, GROSSMONT, CALIF. Grossmont Union High School Dist., Grossmont, Calif. Bids July 3. Kistner, Curtis & Wright, Spreckles Bldg., San Diego, Calif., archts.

Grayson Investment Corp., 16445 Victory Blvd. Los Angeles, Calif. Owner Builds. $816,540, 103 frame, stucco DWELLINGS on Hart, Schoolcraft, Bassett Sts., in Canoga Park, LOS ANGELES, CALIF.

▲ **Allison Honer Co.**, Box 84, Santa Ana, Calif. Contract Awarded. $2,004,191. General constr. State SCHOOL for the Deaf—**Electric Supply Co.**, 275 Main St., Riverside, Calif., $308,468, electrical work—**Johnston & Washer**, 1615 S. Santee St., Los Angeles, Calif., $608,300, Mechanical work, RIVERSIDE, CALIF. State Div. Architecture, P. Wks. Bldg., Sacramento, Calif. Grand total $2,920,959. Bids June 19, awarded July 5, CD 7/2, under LB.

† **Martinelli Constr. Co.**, 1580 Folsom St., San Francisco, Calif. Contract Awarded. $522,788, addnl. facilities BUILDING 351A, U. S. Naval Radiological Defense Laboratory at San Francisco Naval Shipyard, Spec. 25907, SAN FRANCISCO, CALIF. Twelfth Naval Dist., Federal Office Bldg., San Francisco, Calif. Bids June 27, awarded July 5. CD 7/6, under LB.

ALASKA

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲† **Peter Kiewit Sons' Co.**, 1300 Aloha St., Seattle, Wash., Contract Awarded, $3,671,313, est. $5,512,535, hangar, Inv. No. 51-41, Eielson Air Force Base, ALASKA. U. S. Eng., New Washington Hotel, Seattle 1, Wash. Bids May 16. CD 5/23, under LB.

▲† **Morrison-Knudsen Co., Inc.**, 319 Broadway, Boise, Idaho, Low Bidder, $3,198,500, est. $3,371,696, bulk petroleum storage and handling facilities, Inv. No. S-95-507-51-92, Eielson Air Force Base, ALASKA. U. S. Eng., New Washington Hotel, Seattle, 1, Wash. Bids July 6. CD 6/28.

▲† **S. Macri Constr. Co.**, 511 21 Ave. N., Seattle, Wash. Low Bidder, $3,735,000, est. $2,578,788, outside utilities in Army Constr. area, Inv. 51-104, Ladd Air Force Base, ALASKA. U. S. Eng., New Washington Hotel, Seattle, Wash. Bids July 6. CD 6/11.

▲† **U. S. Eng.**, (APO 942, c/o PM, Seattle, Wash.) Anchorage, Alaska rejected bids June 7, three 500-man airmen dormitories, Inv. No. 51-59, Elmendorf Air Force Base, ALASKA, L. B. $8,406,021, est. $10,-133,516. Will re-advertise. CD 6/12, under LB.

▲† **U. S. Eng.**, (APO 942, c/o PM, Seattle, Wash.) Anchorage, Alaska, rejected bids, 3 airmens dormitory bldgs., Inv. No. 51-60, Ladd Air Force Base, ALASKA. L.B. $10,213,871, est. $10,486,092. CD 6/13, under LB.

▲† **U. S. Eng.**, New Washington Hotel, Seattle 1, Wash. rejected bids June 25, outside utilities, army construction area, Inv. No. S95-597-51-66, Eielson Air Force Base, ALASKA. L.B. $3,396,000, est. $3,336,-367. CD 7/5, under LB.

† **U. S. Eng.**, (APO 942 c/o PM, Seattle, Wash.) Anchorage, Alaska, rejected bids June 19, refrigerated warehouse, Inv. No. 51-75, Eielson Air Force Base, ALASKA. L.B. $519,519, est. $412,105. CD 6/26, under LB.

▲† **U. S. Eng.**, New Washington Hotel, Seattle 1, Wash. rejected bids May 23, 2 organizational maintenance shops at Ladd Air Force Base, and 2 at Eielson Air Force Base, Inv. No. S95-507-51-81, ALASKA. L.B. $2,415,875, est. $2,023,342. CD 5/29, under LB.

▲† **U. S. Eng.**, New Washington Hotel, Seattle 1, Wash. rejected bids June 27, outside utilities, Inv. No. S95-507-51-115, Elmendorf Air Force Base, ALASKA. L.B. $2,129,277, est. $2,635,236. CD 7/5, under LB.

† **U. S. Eng.**, New Washington Hotel, Seattle 1, Wash. cancelled bids to have been opened July 12, one field maintenance and artillery shop at Ladd Air Force Base, one special maintenance shop and one ordnance shop at Eielson Air Force Base, all 1 story, masonry constr., S 95-057-51-123. ALASKA. Project abandoned. CD 6/12.

† **U. S. Eng.**, (APO 942, c/o PM, Seattle, Wash.) Anchorage, Alaska, rejected bids June 5, infirmary bldgs. at Ladd and Eielson Air Force Bases, Inv. 51-65, L. B. $415,000. ALASKA. CD 6/12, under LB.

▲† **U. S. Eng.**, New Washington Hotel, Seattle 1, Wash. rejected bids June 27, outside utilities, Inv. No. S95-507-51-113. WHITTIER, ALASKA. L.B. $1,714,000, est. $1,480,480. CD 7/5, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

▲† **J. C. Boespflug Constr. Co. and S. Birch & Sons**, 1912 4 Ave. S., Seattle, Wash. Contract Awarded, $1,495,899, est. $1,284,822. LAUNDRY and DRY CLEANING PLANT, Inv. No. S95-507-51-107, FORT RICHARDSON, ALASKA. U. S. Eng., New Washington Hotel, Seattle 1, Wash. Bids June 28. CD 7/5, under LB.

▲† **U. S. Eng.**, New Washington Hotel, Seattle 1, Wash. rejected bids June 27, NCO FAMILY QUARTERS, Inv. No. S95-507-51-118, WHITTIER, ALASKA. L.B. $3,232,000, est. $3,952,096. CD 7/5, under LB.

CANADA

BIDS ASKED—HEAVY CONSTRUCTION

Alta., Vauxhall—B.A. 7/23—Village, R. J. Halpin, secy.-treas., Village Hall, WW and sewerage sys., incl. 18,700 lin. ft. 4-6 to 8-in. water distr. sys., 19,800 lin. ft. 8 and 10 in. sewers and 40 manholes, sewage pump station and sewage treatment

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plant. Plans deposit $25. Haddin, Davis & Brown, Ltd., 513 6th Ave. W., Calgary, engr.

N. S., Main-A-Dieu—B.A. 7/25—Secy. Dpt. P. Wks., Hunter Bldg., Ottawa, Ont., breakwater repairs. Approx., $77,000 plans deposit $20. R. Blais, c/o owner, engr.

N. B., Chatham—B.A. 7/31—Defence Constr. Ltd., 1032 Gottinger St., Halifax, supply and install water pumping equip. and controls and construct pump house and water storage facilities at R.C.A.F. station. Approx. $100,000. Plans deposit $50. P. J. Mangan, c/o owner, ch. engr.

BIDS ASKED—BUILDINGS

▲ B. C., Vancouver—BUILDINGS—B.A. 7/26—J. L. Adams, c/o Central Mortgage & Housing Corp., 360 Homer St., 25 buildings to contain 193 suites boiler house, incl. rough and finish grading, driveways and sidewalks. $3,000,000. Plans deposit $100.

▲ Ont., Sudbury—HOME FOR AGED—B.A. 7/26—Sudbury and District Home for Aged, 83 Cedar St., building for aged serving 28 municipalities. $1,000,000. J. P. O'Gorman, 209 Mackey Block, and Rountheaite & Fairfield, 22 Harbord St., Toronto, archts. CD 1/8.

N. S., Pictou—HIGH SCHOOL—B.A. 7/27—East Pictou School Dist., Pictou, Nova Scotia Provincial Govt., Parliament Bldgs., Halifax, high school. $300,000. T. P. Nusby, ch. engr. Dpt. Hys. & Pub. Wks., Halifax. CD 12/12/47.

▲ B. C., Vancouver—BUILDINGS—B.A. 7/31—J. L. Adams, engr., c/o Central Mortgage & Housing Corp., 360 Homer St., 25 buildings, incl. 193 suites, boiler house grading driveways, sidewalks, etc. at Little Mountain Site. Approx. $1,700,000. Plans deposit $100. Semmens & Simpson, 614 W. Pender St., archts. CD 8/18/49.

Que., Cote St., Luc—PLANT—Bids Asked—Canadian Pacific Ry. Co., c/o E. Armstrong, ch. engr., Windsor Station, Montreal. 1 story, burnt., 40x50 ft., concrete, brick diesel lubricating oil reclamation plant.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

British Columbia—Province of B. C., Parliament Bldgs., Victoria.

Highway Constr. Co. Ltd., 789 W. Pender St., Vancouver, B. C., $541,006, reconstruct 1.33 mi. Yale-Bell Crossing Sect. of Trans-Canada Hy. CD 6/27, under LB.

North Shore Constr. Co. Ltd., 306 Castle Bldg., Ottawa, Ont. Contract Awarded. $128,201. breakwater, BONAVISTA, NEWFOUNDLAND. Dpt. P. Wks., Hunter Bldg., Ottawa, Ont. Bids July 4. CD 6/21.

Canadian Johns Manville Co. Ltd., Sun Life Bldg., Montreal, Que. Contract Awarded. $231,871. cement asbestos pipe for water mains, WINNIPEG, MAN. Municipality, Winnipeg, Man. W. D. Hurst, city engr. CD 2/11/49.

▲ QUEBEC—Province of Quebec, Quebec City.

U. Ste. Marie, Industrial Centre, Quebec City, Que., Contract Awarded. $2,000,000. Bridge over Montmorency River, Ste. Anne de Beaupre. Dpt. P. Wks., Quebec City, Que., engr. CD 6/22/50.

QUEBEC—Province of Quebec, Quebec City, Que.

U. Ste. Marie, Industrial Centre, Quebec City, Que., Contract Awarded. $250,000, 3 mi. road constr. Riviere du Lop. Approx. $600,000. 7 mi. road between St. Gregoire de Montmorency and Cateau Richer on the Quebec Ste. Anne de Beaupre Hy., E. Gohier, c/o owner, engr.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ Cape Breton County Hospital Bd., Sydney, N. S., rejected bids Apr. 3. MENTAL HOSPITAL, SYDNEY RIVER, N. S. Est. $2,000,000. CD 3/8.

M. Sullivan & Son, Ltd., 214 Elgin St., Arnprior, Ont., Contract Awarded. $621,447. masonry, brick, steel frame, HIGH SCHOOL, concrete fdn., NAPANEE, ONT. Napanee & District Collegiate Institute Bd., Napanee, Ont. Bids July 2, awarded July 4. CD 6/11.

Dickie Constr. Co. Ltd., 17 Yorkville Ave., Toronto, Ont. Contract Awarded. Approx. $800,000. 1 story 407x396 ft. biscuit FACTORY exten., 130x100 ft. wing for offices, rein.-con. with brick, and unplated tile backing, rein.-con. roof, TORONTO, ONT. Christie Brown & Co., Ltd., 202 King St., E., Toronto, Ont. CD 3/23.

J. E. Perron & Fils, Ltd., 129 Cartier St., Chicoutimi, Que., Contract Awarded. Approx. $900,000. COURT HOUSE, CHICOUTIMI, QUE. Dpt. P. Wks., Quebec City, Que., Lamarche & Gravel, 187 Racine St., Chicoutimi, Que., archts. CD 2/1/50.

▲ Foundation Co. of Canada, Ltd., 1900 W. Sherbrooke St., Montreal, Que. Contract Awarded. Approx. $1,500,000. PAPER PLANT remodeling, HULL, QUE. E. B. Eddy Co. Ltd., 7 Bridge St., Hull, Que. Stadler, Hunter & Co., 1117 W. Ste. Catherine St., Montreal, Que., archts.

LATIN AMERICA

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

Ingenieros Unidos del Norte (Ing. Jose Maiz Mier and Ing. Gabriel Benitez) Direccion Conocido, Monterrey, N. L., Contract Awarded, Approx. $600,000. WW, featuring 12 kilometers 48 in. pipe, MONTERREY, MEXICO. Nuevo Leon Govt., Palacio del Estado, Monterrey, N. L. Awarded July 3. CD 5/3.

OFFICIAL PROPOSALS

Bids: August 9, 1951

Construction of Sanitary Sewers and Appurtenances

COLUMBIA MUNICIPAL AUTHORITY
COLUMBIA, PENNSYLVANIA

Sealed proposals for the construction of sanitary sewers and appurtenances and a primary sewage treatment plant will be received by the Columbia Municipal Authority until 8:00 P.M., E.D.S.T., Thursday, August 9, 1951, at which time the bids will be publicly opened and immediately read in a meeting of the Authority to be held at the Borough Hall, Columbia, Pennsylvania.

The work will be divided into five contracts and separate proposals will be received for each of the following contracts:

Contract No. 1—General Construction of the Sewage Treatment Plant, including mechanical work.

Contract No. 2—The Plumbing for the Sewage Treatment Plant.

Contract No. 3—The Heating for the Sewage Treatment Plant.

Contract No. 4—The Electrical Work for the Sewage Treatment Plant.

Contract No. 5—Sanitary Sewers and Appurtenances consisting of approximately 8,000 feet of vitrified clay pipe and appurtenances.

Specifications, Proposal Forms, Drawings, and other contract documents may be examined at the office of Glace & Glace, Consulting Engineers, Harrisburg, Pennsylvania, or the office of the Borough, Columbia, Pennsylvania. A complete set of bidding documents, may be obtained at the office of the Engineer or the Borough Clerk, upon depositing $30.00 for the set containing Contracts 1, 2, 3 and 4, or $20.00 for the set containing Contract 5. This full amount will be refunded if a bid is submitted and if the documents are returned in good condition within 10 days after the opening of bids. If the documents are not returned within this period, the deposit will be forfeited. No deposit will be returned to non-bidders.

No bid on any of the construction work will be considered unless it is accompanied by the bidder's certified check drawn upon a solvent bank and made payable to the order of the Columbia Municipal Authority, for the following sums:

Project	Bid Security
Contract No. 1, Sewage Treatment Plant	$25,000
Contract No. 2, Plumbing for Sewage Treatment Plant	1,000
Contract No. 3, Heating for Sewage Treatment Plant	1,000
Contract No. 4, Electrical Work for Sewage Treatment Plant	2,000
Contract No. 5, Sanitary Sewers and Appurtenances	3,000

These sums will serve as bid security and will be forfeited to the Authority as liquidated damages in the event an award is made and the contracts and bonds are not promptly and properly executed as required in the specifications.

No bidder may withdrawn his bid within 30 days after the actual date of the opening. The Columbia Municipal Authority reserves the right to reject any or all bids, to waive any technical defects, and to accept any bid that it may deem to be for the best interests of the Authority.

BY ORDER OF THE COLUMBIA MUNICIPAL AUTHORITY
T. H. Kain, Secretary

Bids: August 6, 1951

Relocation of Building No. 237

THE PORT OF NEW YORK AUTHORITY
PORT NEWARK
CONTRACT PN-180.001

Sealed proposals for the relocation of Building No. 237 at Port Newark will be received at the office of the Chief Engineer of the Port of New York Authority, Room 1100, 111 8th Ave, New York 11, until 11:30 A.M. Monday, August 6, 1951, at which time and place said proposals will be opened and read.

Contract documents may be seen at the office of the Chief Engineer and copies will be furnished upon deposit of $25. per set. The deposit will be remitted if the documents are returned in good condition, not later than 30 days after the opening of proposals.

THE PORT OF NEW YORK AUTHORITY
Howard S. Cullman, Chairman.
New York, July 19, 1951

OFFICIAL PROPOSALS

Bids: July 30, 1951

Additional Partitions and Hung Ceiling in Room 1402

THE PORT OF NEW YORK AUTHORITY
PORT AUTHORITY BUILDING
CONTRACT EXD-120.042

Sealed proposals for additional partitions and hung ceiling in Room 1402 of the Port Authority Building will be received at the office of the Chief Engineer of The Port of New York Authority, Room 1100, 111 8th Ave., New York 11, until 11:30 A.M. Monday, July 30, 1951, at which time and place said proposals will be opened and read.

Contract documents may be seen at the office of the Chief Engineer and copies will be furnished upon deposit of $10. per set. The deposit will be remitted if the documents are returned in good condition, not later than 30 days after the opening of proposals.

THE PORT OF NEW YORK AUTHORITY
Howard S. Cullman, Chairman.
New York, July 19, 1951

Bids: July 30, 1951

Grading, Paving and Fencing for Parking Lot C

THE PORT OF NEW YORK AUTHORITY
LINCOLN TUNNEL
CONTRACT LT-120.022

Sealed proposals for grading, paving and fencing for parking Lot C adjacent to the ramp approach to the Bus Terminal from the Lincoln Tunnel will be received at the office of the Chief Engineer of The Port of New York Authority, Room 1100, 111 8th Ave., New York 11, until 11:45 A.M. Monday, July 30, 1951, at which time and place said proposals will be opened and read.

Contract documents may be seen at the office of the Chief Engineer and copies will be furnished upon deposit of $10. per set. The deposit will be remitted if the documents are returned in good condition, not later than 30 days after the opening of proposals.

THE PORT OF NEW YORK AUTHORITY
Howard S. Cullman, Chairman.
New York, July 19, 1951

U. S. Government

UNITED STATES DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (for readvertisement of Specifications No. DC-3413) will be received by Bureau of Reclamation, Davis Dam, Arizona, until August 2, 1951, and then publicly opened for furnishing labor and materials and performing all work for the completion of Davis Dam stilling basin, Davis Dam Project, Arizona-Nevada. The work is situated about 30 miles west of Kingman, Arizona. Principal items are approximately: 396,000 cu. yds. of excavation for spillway and river channel; 27,300 cu. yds. of concrete in spillway; bituminous resurfacing of 27,600 sq. yds. of roadways; and other work. The work is divided into 2 schedules. Time allowed for completion will be 560 days. For particulars, address Bureau of Reclamation, Davis Dam, Arizona; or Building 1-A, Denver Federal Center, Denver, Colorado.

Commonwealth of Massachusetts, Metropolitan District Commission. Sealed bids or proposals will be received by the Metropolitan District Commission at its office, 20 Somerset Street, Boston, until 1 P.M., D.S.T., Thursday, August 2, 1951 and at that time and place will be publicly opened and read. The work to be done consists of constructing Forest Hills overpass and traffic interchange at the intersection of Washington Street and the Arborway, Boston. Charge for specification is $25.00, which amount is returnable only to bidders. Proposal guarantee shall consist of a certified check for $50,000.00 payable to the order of the Commonwealth of Massachusetts. Attention is called to the minimum rates of wages to be paid on the work as determined by the Commissioner of Labor and Industries under the provisoins of Chapter 461 of the Acts of 1935. Complete information may be obtained from the office of the Commission. The right is reserved to reject any or all proposals.

By William T. Morrisey,
Commissioner.

July 6, 1951.

READ THE OFFICIAL PROPOSAL COLUMNS OF
ENGINEERING NEWS-RECORD
THIS WEEK AND EVERY WEEK

U. S. Government

UNITED STATES DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Invitation No. DS-3487) will be received by the Bureau of Reclamation, Denver, Colorado, until August 14, 1951, and then publicly opened for furnishing 3 vertical-shaft, 14,000-hp., 150-rpm hydraulic turbines for American Falls Power Plant, Minidoka Project, Idaho. Delivery is desired within 600 days. For particulars, address Bureau of Reclamation, Building 1-A, Denver Federal Center, Denver, Colorado.

UNITED STATES DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-3482) will be received by Bureau of Reclamation, Goleta, California, until August 7, 1951, and then publicly opened for furnishing labor and materials and performing all work for the construction of Glen Anne Dam, Cachuma Project, California. The work is situated approximately 6 miles northwest of Goleta, California. Principal items are approximately: 420,000 cu. yds. excavation; 285,000 cu. yds. embankment in dam; 1,400 cu. yds. concrete; 11,000 tons asphaltic concrete or 13,000 cu. yds. of riprap slope protection; and other work. Time allowed for completion will be 600 days. For particulars, address Bureau of Reclamation, Goleta, California; or Building 1-A, Denver Federal Center, Denver, Colorado.

OFFICIAL PROPOSALS

Sanitary Sewerage System

EWING-LAWRENCE SEWERAGE AUTHORITY

Sealed bids will be received by the Ewing-Lawrence Sewerage Authority (mailing address, 156 West State Street, Trenton 8, New Jersey) until two o'clock P.M., Eastern Daylight Saving Time on the Twentieth day of August, 1951 at the Lawrence Township Hall on the Trenton-Princeton Road near West Church Road, for constructing a sanitary sewerage system in Ewing and Lawrence Townships, Mercer County, New Jersey, in accordance with the plans and specifications prepared by Buck, Seifert and Jost, Consulting Engineers, 112 East 19th Street, New York 3, New York.

Copies of the plans and specifications may be obtained either from the Authority or from the Consulting Engineers upon deposit of Fifty Dollars, which sum will be refunded upon return of the plans and specifications in good condition within twenty days after the date on which bids are received.

The work to be done includes furnishing the materials and performing the labor for constructing approximately 2,900 feet of 36 inch, 1,500 feet of 33 inch, 7,000 feet of 30 inch, 20,600 feet of 27 inch, 3,500 feet of 18 inch, 3,900 feet of 15 inch, 11,800 feet of 12 inch, 24,600 feet of 10 inch and 228,700 feet of 8 inch gravity sewers and 46,000 feet of 6 inch house connections. The work is divided into eight sections under which it is classified according to its character and location. Bidders will be allowed to bid on one or more sections or on a combination of sections.

Each proposal must be accompanied by a certified check or bid bond from a reliable surety company authorized to do business in the State of New Jersey and satisfactory to the Authority in amount equal to ten percent of the proposal, and by an agreement from a qualified surety company to execute the required performance bond in the event the bidder is awarded the contract.

The Authority reserves the right to consider bids for thirty days after their receipt before awarding any contract and to accept any bid or to reject any or all of them.

EWING-LAWRENCE SEWERAGE AUTHORITY
By: Wilfred F. Predhome
Secretary

Bids: August 9, 1951

The Delaware Memorial Bridge

CONTRACT NO. 9—FENDERS

Sealed proposals for construction of the Fenders and the repair of the damaged granite facing of the east tower pier for "The Delaware Memorial Bridge" over the Delaware River near Wilmington, Delaware, will be received by the Delaware State Highway Department at the office of the Director, Delaware Crossing Division, Continental American Building, Wilmington, Delaware, until 11 o'clock Eastern Standard Time (12 o'clock Eastern Daylight Saving Time), August 9, 1951, at which time and place said proposals will be publicly opened and read.

The work involves the following principal quantities:

Lump Sum	Repair of Pier C Granite Facing
490,000 lbs.	Structural Steel
220 m.b.m.	Creosoted Timber
1,200 lin. ft.	1¼" Wire Rope
60,000 lbs.	Hardware

Performance of the Contract shall begin as promptly after execution of the contract as work on the other contracts of this project will permit and shall be completed on or before May 1, 1952.

Monthly payments will be made for ninety (90) per cent of the construction completed each month.

Bidders must submit proposals upon forms furnished by the Department.

Each proposal must be accompanied by an acceptable surety bond or certified check for a sum equal to at least ten (10) per cent of the total amount of the proposal.

The Contract will be awarded or proposals rejected within thirty (30) days from the date of opening proposals. The right is reserved to reject any or all bids.

One set of the Plans and two copies of the Specifications may be obtained from the Consulting Engineers, Howard, Needles, Tammen & Bergendoff, 55 Liberty Street, New York 5, N. Y., after July 12, 1951, upon payment of $10.00.

Any prospective bidder who has made such a deposit may secure extra blue print copies of the plans upon payment of 50c per drawing and an extra copy of the Specifications upon payment of $2.50 per copy.

Plans and Specifications need not be returned to the Engineers, and the above payments will not be refunded.

The Plans and Specifications and other contract documents may be examined at the office of the Director, Delaware Crossing Division, Continental American Life Insurance Building, Wilmington, Delaware, or at the office of the Engineers, Howard, Needles, Tammen & Bergendoff.

State Highway Department
J. Gordon Smith, Chairman
W. A. McWilliams, Director
Delaware Crossing Division
Wilmington, Delaware
July 2, 1951.

Bids: July 31, 1951

River Piers

Sealed proposals will be received by the State Road Commission of West Virginia at its office in Charleston, West Virginia until Ten o'clock A.M., Tuesday, July 31, 1951, Federal Aid Urban Interstate Project UI-203 (9), Ohio County.

(U. S. 40) river piers #5, #6, #7, and #8 for the Ninth Street Bridge #1830 over the Ohio River at Wheeling, West Virginia

Certified Check $40,000.00

Quantities
Dry Excavation 160 CY
Wet Excavation 9,750 CY
Rock Excavation 2,420 CY
Sub-Foundation Drilling 40 LF
Class "A" Concrete (Substructure) 9,300 CY
Steel Reinforcement Bars 341,600 LB
Fabricated Structural Steel 22,800 LB
Cofferdams (Piers 5 to 8 inclusive) Lump Sum.

The State Road Commission of West Virginia
W. T. Brice, Sec.

News-Record 54676—Dept.—7-19

Bids: July 31, 1951

Bridge Extensions

STATE OF NEW JERSEY
STATE HIGHWAY DEPARTMENT
TRENTON

NOTICE IS HEREBY GIVEN that sealed bids will be received by the State Highway Commissioner for:

RT. 3, SEC. 1C, PENHORN CREEK BRIDGE

Construction of Extensions to the existing bridge over Penhorn Creek, on Route 3, Section 1C, in North Bergen Township and Secaucus Borough, Hudson County. The principal items of construction are:

Estimated:
210 cu. yds. Concrete in Structures
16,850 lbs. Reinforcement Steel in Structures
54,800 lbs. Structural Steel

Bids for the above will be received at the office of the State Highway Department, Assembly Room, Room 140, in the State Highway Office Building, 1035 Parkway Avenue, Trenton, New Jersey, on Tuesday, July 31, 1951, at ten o'clock (10:00 A.M.—EASTERN STANDARD TIME), eleven o'clock (11:00 A.M.—DAYLIGHT SAVING TIME), and will be opened and read immediately thereafter.

The receipt and opening of bids is subject to the proper qualification of the bidder in accordance with the provisions of the prequalification law and the regulations adopted by the State Highway Commissioner. Bidders must also submit a revised financial statement and statement of plant and equipment with their bid.

Drawings, specifications and form of bid, contract and bond for the proposed work are on file in the office of the State Highway Department, Trenton, N. J., and may be inspected by prospective bidders during office hours. Plans will be furnished on a deposit of Ten Dollars ($10.00) for each set of plans upon application to A. Lee Grover, Chief Clerk, State Highway Department, Room 139, State Highway Office Building, 1035 Parkway Avenue, Trenton, N. J. Bids must be made upon the standard proposal forms in the manner designated in the standard State Highway specifications and must be enclosed in sealed special addressed envelopes bearing the name and address of the bidder and work bid upon on the outside, and must be accompanied by a certified check drawn to the order of the Treasurer of the State of New Jersey for not less than ten percent (10%) of the amount of the bid, provided that the said certified check shall not be less than $500.00 nor more than $20,000 and must be delivered at the above place on or before the hour named. Copies of the standard proposal forms and special addressed envelopes will be furnished on application. Bids not enclosed in sealed special addressed envelopes will be considered informal and will not be opened. The right is reserved to reject any or all bids.

Signed: R. J. Abbott
State Highway Commissioner

Bids: July 31, 1951

Route Construction

STATE OF NEW JERSEY
STATE HIGHWAY DEPARTMENT
TRENTON

NOTICE IS HEREBY GIVEN that sealed bids will be received by the State Highway Commissioner for:

ROUTE 4 PARKWAY, SECTIONS 21B and 22

Construction of Route 4 Parkway, Sections 21B and 22, from Dover Road to Route 4 North of Cassville Road and Connection to Route 4 at Beachwood, Paving, Boroughs of Beachwood and South Toms River, Townships of Berkeley and Dover, Ocean County. Length 4.606 miles.

Estimated:
68,516 cu. yds. Roadway Excavation—Earth
113,942 cu. yds. Borrow Excavation
38,062 cu. yds. Subbase
92,720 sq. yds. Waterbound Mac. Base & Inter. Courses
11,344 tons Pavement, Type MA-BC
39,933 sq. yds. 10" Plain Conc. Pavement
16,572 lin. ft. Rein. Concrete Pipe
37,857 lin. ft. Concrete Curbs

Bids for the above will be received at the office of the State Highway Department, Assembly Room, Room 140, in the State Highway Office Building, 1035 Parkway Avenue, Trenton, New Jersey, on Tuesday, July 31, 1951, at ten o'clock (10:00 A.M.—EASTERN STANDARD TIME), eleven o'clock (11:00 A.M.—DAYLIGHT SAVING TIME), and will be opened and read immediately thereafter.

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(Continued on page 124)

OFFICIAL PROPOSALS

Bids: July 25, 1951

State Road Work

NOTICE TO CONTRACTORS: STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.—Pursuant to the provisions of the Highway Law, and special provisions for projects financed with federal aid funds, sealed proposals will be received until ten-thirty o'clock A.M., advanced standard time, which is nine-thirty o'clock A.M., eastern standard time on Wednesday, July 25, 1951 by Henry A. Cohen, Director, Bureau of Contracts & Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for the following projects: Maps, plans, specifications and proposal forms may be seen and obtained at the office of the State Department of Public Works, Bureau of Contracts & Accounts, Albany, N. Y., and at the office of the District Engineers noted below, and may also be seen at the office of the State Department of Public Works, 270 Broadway, New York City.

The deposit for plans and proposal forms for each contract is indicated below. A refund will be made in full to bidders for the return of one set in good condition within 30 days of award or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

County	Contract No.	Name	Miles	Type	Deposit	Estimated Cost of Work
		DISTRICT No. 1				
		G. L. Nickerson, Dist., Engr., 353 Broadway, Albany, N. Y.				
Albany	FARC51-56	Slingerlands-Albany, S. H. 3237 Proj. F392(9)	2.04	Asp.Conc. Type 1A, Opt.	$3,000 Plans $10	$54,000
Albany	FARC51-52	Albany-Bethlehem Center, S. H. 5499 Proj. F435(5)	1.16	Asp. Conc. Type 1A, Opt.	$1,500 Plans $10	$27,000
Rensselaer	FC51-1	Hoosick Falls Village: John & Water Streets	0.03	2 Reinf. Conc. Deck Slab	5% of Bid Plans $10	$11,501.50
Schenectady	FGRC51-46	Sep. of Grades of the NYC RR with Wyatte-Hoffman, S. H. 5110 Proj. FG349(9)	0.99	9" Cem. Conc. Pavt. 2 at 24' Wide = 0.91 Mi. Misc. Work = 0.08 Mi. RR Sep. 2 Span Alpha I-Beam 167' Tot. Alpha Royalty = $470.00	$50,000 Plans $15	$976,000
		DISTRICT No. 3				
		Wm. Robinson, Dist. Engr., Weigh Lock Bldg., Syracuse, N. Y.				
Cayuga	FARC51-36 FASSH51-5	Victory-Red Creek, Pt. 1, S. H. 8048 Victory-Cato, S. H. 1174 Victory-Cato, Pt. 1 Proj. S115(2)	5.46	9" Cem. Conc. Pavt. 20'-40'-50' Wide = 5.42 Miles Misc. Work = 0.04 Mi. Conc. Twin Box 13' Ea. Span	$55,000 Plans $10	$924,000
Onondaga	MT51-2	New York State Thruway, Mohawk Section MT50-2P	.....	Relocating Power Transmission Lines	$400 Plans $10	$7,000
		DISTRICT No. 4				
		A. R. Mulligan, Dist. Engr., Barge Canal Terminal, Rochester, N. Y.				
Livingston	FARC51-45	Dansville-Mt. Morris, Pts. 1 & 2, S. H. 714-715 Proj. No. S130(1)	9.56	Asp. Conc. Type 1A, Opt. 3 Span Plate Girder 304'-91' Tot. 40' I-Beam; 25' Conc. Slab; 21'-5½" Conc. Slab	$88,000 Plans $50	$1,616,000
Ontario	FARC51-49 OT51-5	Dresden-Geneva, Pt. 2, S. H. 1704 New York State Thruway Ontario Sec. "K" & "L" Proj. F505(6)	11.31	Landscaping	$1,800 Plans $15	$32,000
		DISTRICT No. 5				
		C. R. Waters, Dist. Engr., 65 Court Street, Buffalo, N. Y.				
Erie	FARC51-54	Southwestern Boulevard, S. H. 9269 Proj. F1079(2)	3.71	Asp. Conc. Type 1A, Opt.	$17,000 Plans $10	$300,000
		DISTRICT No. 6				
		H. F. Brumm, Dist. Engr., 30 W. Main St., Hornell, N. Y.				
Tioga	PSC7688 & 8145	North Avenue Underpass Grade Crossing Elim. of Owego-Candor, Pt. 1, S. H. 5420 & Erie RR	0.31	Drainage, Structures & Leaching Area	$1,500 Plans $10	$27,000
		DISTRICT No. 8				
		J. S. Bixby, Dist. Engr., Pleasant Valley Road, Poughkeepsie, N. Y.				
Putnam	FAS SH51-6	Kent Cliffs-Carmel Proj S354(1)	1.70	Bit. Mac. Type 1, Pen. Method 51"-4" I-Beam	$22,000 Plans $15	$401,000
Ulster & Greene	CT 51-2	New York State Thruway-Catskill Section Catskill Thruway, CT48-1: Saugerties-Greene Co. Line, CT46-1: Ulster Co. Line-Brick Schoolhouse Road, CT46-2 Brick Schoolhouse Rd., SH8231, CT46-3	8.61 8.61	Calcium Chloride Tr. Gravel Shoulders	$6,000 Plans $10	$108,000
		DISTRICT No 9				
		F. W. Donovan, Dist. Engr., 71 Frederick St., Binghamton, N. Y.				
Broome	FAC51-5 FARC51-50	Binghamton City: Court St., FAC48-7 Vestal, S. H. 420; Park Bridge, S. H. 127 and Binghamton-Windsor, Pt. 2, S. H. 5022 Proj. U401(8); U344-1(7)	2.34	Landscaping	$1,000 Plans $10	$18,000
Chenango	FAS SH51-1 FAS SH51-2P	Bainbridge-Masonville, Pt. 1A, Bainbridge-Masonville, Pt. 1, FAS S. H. 50-15 Proj. S273(3)	0.57	Asph. Conc Type 1A, Opt. Cantilever Deck Girder (Alpha) 3 Spans, 2 at 155' & 1 at 190' Alpha Royalty—$495.30	$45,000 Plans $15	$815,000
Chenango	FARC51-55	Oxford Village Bridge-Main, Clinton & Washington Streets S. H. 9293 Oxford-Soldiers Home, S. H. 5623 Proj. S270(1)	0.13	Asp. Conc. Type 1A, Opt. 180' Span Truss	$15,000 Plans $10	$266,000
Delaware	FARC51-53	Andes-Margaretville, S. H. 8017 Proj. F69(4)	5.50	Asp. Conc. Type 1A, Opt.	$15,000 Plans $10	$280,000

Special attention of bidders is called to "General Information for Bidders" in the proposal, specification, and contract agreement, and to the special provisions applying to projects financed with federal funds. Award of a contract is subject to the "Controlled Materials Plan" of the National Production Authority as well as to regulations issued thereunder.

Proposal for each contract must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by draft or certified check payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum as specified in the advertisement and the proposal. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Law, as set forth in "Instructions to Bidders."

When optional types are permitted on contracts with federal funds, bidders must state in the space provided in the proposal the exact designation of the optional type upon which the proposal is predicated.

The right is reserved to reject any or all bids.

B. D. TALLAMY
Supt. of Public Works

OFFICIAL PROPOSALS
(Continued from page 123)

nated in the standard State Highway specifications and must be enclosed in sealed special addressed envelopes bearing the name and address of the bidder and work bid upon on the outside, and must be accompanied by a certified check drawn to the order of the Treasurer of the State of New Jersey for not less than ten percent (10%) of the amount of the bid, provided that the said certified check shall not be less than $500.00 nor more than $20,000.00 and must be delivered at the above place on or before the hour named. Copies of the standard proposal forms and special addressed envelopes will be furnished on application. Bids not enclosed in sealed special addressed envelopes will be considered informal and will not be opened. The right is reserved to reject any or all bids.

Signed: R. J. Abbott
State Highway Commissioner

Bids: Aug. 15, 1951

Arch Hangars

"Trans World Airlines, Inc. intends to advertise for lump sum bids for the construction of two thin-shell concrete arch hangars (Span 270 feet) and appurtenant shop and office building to be erected at Chicago Midway Airport, Chicago, Illinois. Plans will be ready for contractors on approximately August 15, 1951. Estimated cost of facility, $2,000,000.00.

All contractors desiring to bid must be prequalified. For information on qualification requirements communicate with Mr. R. M. Huber, Director, Construction — Design, Trans World Airlines, 10 Richards Road, Kansas City, Missouri."

Bids: August 8, 1951

Dam Construction, Etc.

CITY OF BALTIMORE
DEPARTMENT OF PUBLIC WORKS
BUREAU OF WATER SUPPLY
NOTICE OF LETTING

Sealed bids, or proposals, in duplicate, addressed to the Board of Estimates of the Mayor and City Council of Baltimore, and marked "Sealed Bid or Proposal for Constructing the Liberty Dam, Gate Houuse, Etc." will be received at the office of the Comptroller, Room 204 City Hall, Baltimore 2, Maryland, until but not after, Wednesday, AUGUST 8, 1951, at eleven (11) o'clock A.M., Eastern Daylight Time, and at 12 o'clock noon on said date they will be publicly opened and read by the Board of Estimates in Room 231 in said City Hall.

The work to be done under this contract consists in general of furnishing all labor and material for and constructing complete a concrete gravity type dam and appurtenances to be known as the Liberty Dam, a concrete gate house intake tower, etc.

The dam will be located on the North Branch of the Patapsco River approximately two miles northeast of Marriottsville and the gate house tower will be located approximately one and one half miles upstream from the dam at the entrance to the existing ten-foot raw water tunnel to the Montebello Filtration Plants.

The construction includes, but is not limited to, the following items:

Excavation—approx. 159,000 cubic yards;
Concrete—approx. 158,000 cubic yards;
Portland Cement—approx. 132,000 barrels;
Reinforcing Steel—approx. 318,000 pounds;
8—36" x 60" Sluice Gates.

Bids when filed shall be irrevocable.

Specifications, proposal forms, drawings and other contract documents may be obtained at the office of the Water Engineer, Room 303 Municipal Office Building, Baltimore 2, Maryland, on and after JULY 20, 1951. A charge of Ten Dollars ($10.00) will be made for each set of specifications, etc., and this amount will not be refunded.

Each bid or proposal must be accompanied by a certificate check of the bidder drawn upon a solvent clearing-house bank, payable to the order of the Mayor and City Council of Baltimore, for the sum of Seventy-five Thousand Dollars ($75,000.00).

The Board of Estimates reserves the right to reject any and all bids, and/or to waive technical defects if, in its judgment, the interests of the Mayor and City Council of Baltimore may so require.

Bond in the amount of the contract price will be required of the successful bidder.

Attention of the bidders is called to the minimum wage rates to be paid on this project.

APPROVED:
Arthur B. Price
President, Board of Estimates
J. S. Strohmeyer
Water Engineer

OFFICIAL PROPOSALS

Construction Work For Railroad Bridge

Sealed bids for furnishing labor, equipment, tools and materials for performing all work of cleaning, renewing cover plates, angles, connecting plates, rivets, etc., on three 175-foot spans of single track, pin connected, deck truss railroad bridge over the Rio Grande River between Laredo, Texas, and Nuevo Laredo, Mexico, and painting the structure with one coat of red lead and a protective coat of black paint, will be received by The Texas Mexican Railway Company at Laredo, Texas, until 10:00 A.M., Central Standard Time, August 21, 1951, and then publicly opened.

Further information upon application to S. K. Mason, Chief Engineer, Phone 2696, Laredo, Texas.

Postponement of Bid Date

Bids: August 23, 1951

Additional Water Supply For Latham Water District, Colonie, New York

NOTICE TO CONTRACTORS

Sealed bids will be received by the Town Board of the Town of Colonie, New York, on the 23rd day of August, 1951, until 7:30 P. M., Eastern Daylight Saving Time, for furnishing all labor, materials and equipment and constructing a filter plant, aerator, pumping station and filtered water reservoir, together with furnishing steel sheet piling and miscellaneous equipment and materials for the project for Additional Water Supply, Stony Creek.

The Information for Bidders, Form of Bid, Form of Contract, Plans, Specifications and Performance Bond may be examined at the office of the Town Clerk, Town Hall, Newtonville, New York, and at the office of Kels & Holroyd, 257 Broadway, Troy, New York. Copies thereof may be obtained at the office of Kels & Holroyd, or from the Town Clerk, upon payment of $25.00 for each set. Any bidder upon returning such set promptly and in good condition, will be refunded his payment, and any non-bidder upon so returning such set will be refunded $20.00.

The Town Board of the Town of Colonie, New York, reserves the right to waive any informalities in or to reject any or all bids.

A certified check made payable to the order of the Town of Colonie, in the amount of Five Per Centum (5%) of the bid must be deposited by each bidder with his bid as a guarantee that in case the contract is awarded to him, that he will, within five (5) days thereafter, execute such contract and furnish a satisfactory performance bond. On failure to do so, he shall forfeit the deposit as liquidated damages and acceptance of the bid will be contingent upon the fulfillment of this requirement by the bidder.

The successful bidder will be required to furnish a performance bond satisfactory to the Town of Colonie, New York, in the amount of the contract, and having as surety thereon, such surety company or companies as are acceptable to the Town of Colonie, New York.

The work will be let in separate contracts as follows:

Section No. 5—General Construction on Filter Plant Building, Grading, Walks, Roads, Etc.

Section No. 5A—Clear Water Well or Filtered Water Storage.

Section No. 5B—Flocculators.

Section No. 5C—Outside Piping at Filter Plant.

Section No. 5D—Installation of Pumps, Motors and Engines.

Section No. 5E—Aerator.

Proposals will also be received on Alternate Plan for Filter Plant as follows:

Section No. 5—Alternate—General Construction on Filter Plant Building, Foundations for Steel Clear Water Well, Grading, Walks, Roads, Etc.

Section No. 5A—Alternate—Steel Tank for Clear Water Well.

Section No. 5B—Alternate—Flocculator or Hydro-Treator.

Section No. 5C—Alternate—Outside Piping at Filter Plant.

Section No. 5D—Alternate—Installation of Pumps, Motors and Engines.

OFFICIAL PROPOSALS

Section No. 6—Filter Plant Equipment, Furnishing and Installing.

Section No. 7—Plumbing at Proposed Filter Plant.

Section No. 8—Heating at Proposed Filter Plant.

Section No. 9—Electrical at Proposed Filter Plant.

Proposals will also be received on Alternate Plan for Filter Plant Equipment, Furnishing and Installing and for Plumbing, Heating and Electrical work as follows:

Section No. 6—Alternate—Filter Plant Equipment, Furnishing and Installing.

Section No. 7—Alternate—Plumbing at Proposed Filter Plant.

Section No. 8—Alternate—Heating at Proposed Filter Plant.

Section No. 9—Alternate—Electrical at Proposed Filter Plant.

No bidder may withdraw his bid within 30 days after the date set for the opening thereof. Any bid may be withdrawn prior to the above scheduled time for the opening of bids or authorized postponement thereof.

WILLIAM K. SANFORD, Supervisor
Kels & Holroyd
Consulting Engineers
Troy, New York
June 30, 1951

(Reception of bids has been postponed until August 23, 1951)

Bids: July 31, 1951

Route Construction

STATE OF NEW JERSEY
STATE HIGHWAY DEPARTMENT
TRENTON

NOTICE IS HEREBY GIVEN that sealed bids will be received by the State Highway Commissioner for

ROUTE 10, SECTION 7

Construction of Route 10, Section 7, from Mitchell Avenue to Sherbrooke Parkway, Widening and Sidewalk Grading, Livingston Township, Essex County. Length 0.298 miles.

Estimated:
1,475 cu. yds. Roadway Excavation
2,814 sq. yds. Waterbound Macadam Base and Intermediate Courses
360 tons Pavement, Type FA-BC-1

Bids for the above will be received at the office of the State Highway Department, Assembly Room, Room 140, in the State Highway Office Building, 1035 Parkway Avenue, Trenton, New Jersey, on Tuesday, July 31, 1951, at ten o'clock (10:00 A.M.—EASTERN STANDARD TIME), eleven o'clock (11:00 A.M.—DAYLIGHT SAVING TIME), eleven o'clock (11:00 A.M.—DAYLIGHT SAVING TIME), and will be opened and read immediately thereafter.

The receipt and opening of bids is subject to the proper qualification of the bidder in accordance with the provisions of the prequalification law and the regulations adopted by the State Highway Commissioner. Bidders must also submit a revised financial statement and statement of plant and equipment with their bid.

Drawings, specifications and form of bid, contract and bond for the proposed work are on file in the office of the State Highway Department, Trenton, N. J., and may be inspected by prospective bidders during office hours. Plans will be furnished on a deposit of Ten Dollars ($10.00) for each set of plans upon application to A. Lee Grover, Chief Clerk, State Highway Department, Room 139, State Highway Office Building, 1035 Parkway Avenue, Trenton, N. J. Bids must be made upon the standard proposal forms in the manner designated in the standard State Highway specifications and must be enclosed in sealed special addressed envelopes bearing the name and address of the bidder and work bid upon on the outside, and must be accompanied by a certified check drawn to the order of the Treasurer of the State of New Jersey for not less than ten percent (10%) of the amount of the bid, provided that the said certified check shall not be less than $500.00 nor more than $20,000.00 and must be delivered at the above place on or before the hour named. Copies of the standard proposal forms and special addressed envelopes will be furnished on application. Bids not enclosed in sealed special addressed envelopes will be considered informal and will not be opened. The right is reserved to reject any or all bids.

Signed: R. J. Abbott
State Highway Commissioner

OFFICIAL PROPOSALS

Bids: August 2, 1951

Demolition & Reconstruction of Bridge & Approaches

SEALED PROPOSALS will be received by the undersigned at his office in the Lehigh County Court House, Allentown, Pa., for the demolition of the present Pine St. Bridge and the construction of a new bridge and approaches thereto leading from Pine St., Catasauqua, Pa., to Pine St., Whitehall Township, Lehigh County, Pa., until 11:00 a'clock A.M. (E.D.S.T.) August 2, 1951, and publicly opened after 11:15 o'clock A.M. (E.D.S.T.) of the same day, in the office of the County Commissioners.

Copies of plans, specifications and proposal forms may be obtained at the office of G. Edwin Pidcock Co., Consulting Engineers, B & B Bldg., 546-48 Hamilton St., Allentown, Pa., upon payment of Fifty Dollars ($50.00) for each set. Any bidder, upon returning such set in good condition within ten (10) days after the opening of proposals will be refunded Twenty-five Dollars ($25.00) of his payment.

Each Bidder must deposit with his proposal, a certified check or Surety Company's Bid Bond in an amount of not less than five (5) percent of the base bid in the form as outlined in the "Instructions to Bidders".

Proposals must be sent in on regular forms prepared by the Consulting Engineers in duplicate, in an envelope properly identified, and in the hands of the County Controller at or before the time above mentioned.

No Bidder may withdraw his proposal within fifteen (15) days after the actual date of the opening thereof.

Acceptance of all proposals will be received subject to Lehigh County receiving authority to commence, and authority for allotment of materials for the construction of the said Pine St. Bridge from the Controlled Materials Plan Division of the National Production Authority, Federal Department of Commerce.

The Board of Commissioners of Lehigh County reserves the right to waive any informalities in, or to reject any or all proposals.

ALAN F. WEINSHEIMER,
County Controller

Bids: July 31, 1951

Heating and Ventilating Equipment

CONTRACT 327

SEALED BIDS will be received by the Board of Water Supply, at its offices, thirteenth floor, 120 Wall Street, New York City, until 10:00 A. M., Eastern Standard Time, on Tuesday, July 31, 1951, for Contract 327, for furnishing, delivering, installing and testing heating, ventilating and appurtenant equipment for the Roundout, West Branch and Kensico South effluent chambers, and heating equipment with appurtenances for the drainage chamber at Shaft 13, the coagulating plant at Shafts 17 and the Kensico comfort station, and for performing appurtenant miscellaneous construction, all as set forth in the specifications. The locations of the proposed work are in the Towns of Wawarsing, Ulster county, Carmel, Putnam county and Bedford, North Castle and Mount Pleasant, Westchester county, New York.

No bid will be received and deposited unless accompanied by a certified check upon a National or State bank, drawn and made payable to the order of the Comptroller of The City of New York, in the amount of ten thousand dollars ($10,000.00), for the proper execution of the contract.

At the above place and time the bids will be publicly opened and read. Pamphlets containing information for bidders, forms of bid and contract, specifications, contract drawings, requirements as to surety, etc., can be obtained in Room 1311, at the above address, upon application in person or by mail, by depositing the sum of five dollars ($5.00) in cash or its equivalent for each pamphlet. Within 30 days following the award of contract or rejection of bids, the full amount of such deposit will be refunded for each pamphlet submitted as a bid and a refund of four dollars ($4.00) will be made for each other pamphlet returned in acceptable condition. Arrangements will be made whereby prospective bidders desiring blueprints of the contract drawings for their own use may secure same, the cost thereof to be paid by them. For further particulars, apply at the office of the Chief Engineer at the above address.

IRVING V. A. HUIE, President, RUFUS McGAHEN, Commissioners, Board of Water Supply; RICHARD H. BURKE, Secretary.

SEARCHLIGHT SECTION

EMPLOYMENT • BUSINESS • OPPORTUNITIES • EQUIPMENT—USED or RESALE

UNDISPLAYED RATE:
(Not available for equipment advertising)
$1.50 cents a line, minimum 3 lines. To figure advance payment count 5 average words as a line.
EMPLOYMENT WANTED & INDIVIDUAL SELLING OPPORTUNITY undisplayed advertising rate is one-half of above rate, payable in advance.
PROPOSALS, $1.25 a line an insertion.

INFORMATION.
BOX NUMBERS count as 1 line additional in undisplayed ads.
DISCOUNT OF 10% if full payment is made in advance for four consecutive insertions of undisplayed ads (not including proposals).
EQUIPMENT WANTED or FOR SALE Advertisements acceptable only in Displayed Style.

DISPLAYED—RATE PER INCH:
The advertising rate is $14.25 per inch for all advertising appearing on other than a contract basis. Contract rates quoted on request.
AN ADVERTISING INCH is measured ⅞ inch vertically on one column, 3 columns—30 inches —to a page. E.N.R.

NEW ADVERTISEMENTS received by July 30th at the New York City Office, 330 W. 42 St., N. Y. 18, will appear in August 2nd issue subject to space available.

SALARIED POSITIONS $3,500—$35,000

We offer the original personal employment service (established 41 years.) Procedure of highest ethical standards is individualized to your personal requirements. Identity covered; present position protected. Ask for particulars.
R. W. BIXBY, Inc., 272 Dun Bldg., Buffalo 2, N.Y.

REPLIES (Box No.): Address to office nearest you
NEW YORK: 330 W. 42nd St. (18)
CHICAGO: 520 N. Michigan Ave. (11)
SAN FRANCISCO: 68 Post St. (4)

CIVIL SERVICE

WANTED: BY Missouri State Highway Department, Jefferson City, Missouri, several experienced detailers and designers on reinforced concrete and steel bridges. Permanent position. Give complete details of education and experience.

POSITIONS VACANT

ENGINEERS AND Draftsmen—Experienced in Water Works, Sewers, Water and Sewage Treatment, Industrial Buildings, Incinerators. Also Engineers experienced in construction on above types of work. State salary required, give experience and references and state when you can report. Permanent Employment. P-1292, Engineering News-Record.

STRUCTURAL DESIGNERS and Draftsmen wanted by Baltimore consultant for indeterminate reinforced concrete and steel structures. Good salaries, paid overtime and vacations. State Education, detailed experience, tentative reporting date and salary requirements in first letter. P-1280, Engineering News-Record.

EXPERIENCED AND qualified estimator for general building construction. Must be thoroughly familiar with building plans and experienced in pricing and purchasing for building construction. Applicant should submit a proven experience record. A very attractive proposition can be offered to a qualified man preferably under 40. Location in Southwest. P-1287, Engineering News-Record.

INSTRUCTOR, MASTER'S Degree preferred. Teach mechanics, fluid mechanics, and materials. Position starts September 15, 1951. Location, northwest engineering college. Accredited civil engineering department. Salary $3500. P-1363, Engineering News-Record.

ASSISTANT PROFESSOR, master's degree and some experience preferred. Teach soil mechanics, mechanics, and fluid mechanics. Position starts September 15, 1951. Location, northwest engineering college. Accredited civil engineering department. Salary, $4200. P-1364, Engineering News-Record.

MASTER MECHANIC for non ferrous metals plant in southwestern New England. Ten years experience in heavy industry required. Must be U. S. citizen. Replies which will be held in strict confidence, should state age, experience, salary expected, and when available. P-1377, Engineering News-Record.

WANTED FOUNDRY Superintendent: Experienced in light metals permanent mold practice including melting and alloying. Citizenship required. Location 70 miles north of New York City. Replies which will be held in strict confidence should state age, experience, salary expected and when available. P-1371, Engineering News-Record.

(Continued on page 129)

ESTABLISHED 57 YEARS

POSITIONS IN

Engineering	Appraisals
Architecture	Chemistry
Manufacturing	Teaching
Contracting	Mining
Metallurgy	Sales

Our many years of specializing in Engineering and Technical help enables us to number among our clients the most desirable employers and to place at your disposal a most attractive method of getting in touch with parties needing men of your qualifications.

THE ENGINEERING AGENCY INC.
53 W. Jackson Blvd. Chicago 4, Ill.
Room 1662 Harrison 7-4056

WANTED
STRUCTURAL DESIGNER

By a large American oil company in South America.
Should have college degree and approximately 5 years' experience in drafting and design of structures of steel, timber, and reinforced concrete.
Write giving age, education, marital status, and complete details of past experience. Your reply will be held in strict confidence.

BOX 308-X
RADIO CITY STATION
NEW YORK 19, NEW YORK

CONSTRUCTION SUPERINTENDENT

OLD ESTABLISHED DETROIT, MICHIGAN GENERAL CONTRACTING COMPANY HAS PERMANENT POSITION OPEN FOR AN EXPERIENCED JOB SUPERINTENDENT SPECIALIZING IN LARGE INSTITUTIONAL AND INDUSTRIAL WORK. GIVE FULL PARTICULARS AND QUALIFICATIONS.

P-1341, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

ESTIMATOR
BUILDING CONSTRUCTION

OLD ESTABLISHED DETROIT, MICHIGAN GENERAL CONTRACTING COMPANY SPECIALIZING IN INDUSTRIAL AND INSTITUTIONAL WORK HAS PERMANENT POSITION FOR EXPERIENCED ESTIMATOR. GIVE FULL PARTICULARS AND QUALIFICATIONS.
ADDRESS

P-1344, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

REINFORCED CONCRETE

Unusual opportunity for competent, experienced Superintendent. Must be aggressive and cost-conscious. Write promptly detailed account of experience, with special emphasis on reinforced concrete frame structures. Salary open.

P-1291, Engineering News-Record
330 W. 42 St., New York 18, N. Y.

EXECUTIVE DIRECTOR
Redevelopment Commission

desires experienced planner for present and future projects now approved for large Title 1 program. Applicants must have knowledge of management, construction or real estate. Apply

URBAN REDEVELOPMENT COMMISSION
159 Main St. Stamford, Conn.
Tel. 48-3149

CONSTRUCTION ENGINEER; ALSO CONSTRUCTION FIELD SUPERINTENDENT

New Jersey. No travel. Experienced in road and bridge building, site clearing, excavating, drainage, and estimating. Must be familiar with heavy equipment. Steady position, old established company. Write stating complete experience and personal history to

P-1273, Engineering News-Record
330 W. 42 St., New York 18, N. Y.

SHEET PILING SALESMAN
Extensive Contacts With Users Either For Rent Or Sale Necessary

SW-1350, Engineering News-Record
330 W. 42 St., New York 18, N. Y.

PLANT & MAINTENANCE ENGINEER

Experienced, for work in Continental United States. Some traveling necessary. State salary expected, age, experience, and date available for work. Write

Box ENR 294,
221 W. 41 St., New York 18, N. Y.

DESIGN ENGINEER

Established manufacturer of construction equipment is looking for an engineer with specialized experience in the complete design of front-end loaders. Please write, giving full resume of qualifications and experience. Your reply will be treated with the strictest confidence.

P-1320, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

INSTRUCTORS WANTED: TEACHING POSITIONS:

(1) Instructor for mechanics and surveying. Salary not to exceed $3,000.00 for nine months. (2) Assistant Professor for highways and highway research. Salary up to $4,800.00 for twelve months. Write

Civil Engineering Department,
Mississippi State College,
State College, Mississippi.

CONSTRUCTION SUPERINTENDENT

Experienced in construction of Open Hearth Plants. Must be a good organizer, able to handle labor and qualified to exercise executive ability. Compensation commensurate with ability of individual.

Write and furnish full information regarding education, training, chronological details of experience, age, salary expected, etc. All replies will be considered strictly confidential.

P-1101, Engineering News-Record
330 W. 42 St., New York 18, N. Y.

DESIGNERS, DRAFTSMEN, ELECTRICAL - MECHANICAL - STRUCTURAL. JOB LOCATED IN MIDDLE WEST. EXCELLENT WORKING CONDITIONS. GOOD SALARY. OLD ESTABLISHED COMPANY.

P-9872, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

UNUSUAL OPPORTUNITY

MECHANICAL DEVELOPMENT SUPERVISOR

Established manufacturer with headquarters in New England has an unlimited opportunity for a man in a key supervisory spot. Position is head of mechanical laboratory for the development of new equipment and new processes for fabrication of a wide variety of products from plastics materials. Rapidly expanding organization with many opportunities for further advancement.

Mechanical engineering degree, bold creative imagination, supervisory ability, experience in design of mechanisms, and desire to sell ideas are essential.

P-1282, Engineering News-Record
330 W. 42 St., New York 18, N. Y.

WANTED
Experienced General Foremen

. . . . for high type sub-base and macadam penetration pavement on New Jersey Turnpike. Must be producer. Wages comparable to ability. Contact:

S. J. GROVES & SONS CO.
Swedsboro, New Jersey
for personal interview.

Also

. . . other **Construction Foremen** with Highway experience needed.

DESIGNERS ENGINEERS

Arthur G. McKee & Company has permanent openings at their Cleveland, Ohio, Union, New Jersey and Tulsa, Oklahoma offices for men experienced as:

STRUCTURAL DESIGNERS
CONCRETE DESIGNERS
PIPING DESIGNERS
PRESSURE VESSEL DESIGNERS
ELECTRICAL DESIGNERS
CHECKERS

We are interested in men experienced in Design of Blast Furnaces, Steel Mills, Oil Refineries or similar Heavy Construction Design.

We pay among highest wages in the industry.

Our employees share annually in profit-sharing bonus which is paid in December.

Five-day week: 45 hours per week.

Allowance for moving expenses.

DESIGNERS OF SINTERING PLANTS

Permanent openings at our Cleveland, Ohio offices.

Must be thoroughly familiar in all phases of Sintering Plant Design and capable of advancement.

Please write and submit complete details as to education, experience, age, salary expected, etc.

ARTHUR G. McKEE & COMPANY
2300 CHESTER AVENUE CLEVELAND 1, OHIO

ENGINEERS

ELECTRICAL - MECHANICAL - STRUCTURAL

Openings in Ohio and New York offices offering long term employment with good salary for qualified Group Leaders, Designers and Draftsmen experienced in one or more of the following phases of industrial plant design:

Electrical — Power, lighting layouts and electrical controls.

Mechanical — Plant layout, process piping, conveyors, heating and ventilation, boiler houses, process equipment layout, refrigeration, plumbing, tanks and vessels, packaging equipment, special machinery and equipment.

Structural — Structural steel and reinforced concrete.

Please submit complete resume stating experience, education, salary required and availability date.

THE H. K. FERGUSON COMPANY
Engineers and Builders

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WANTED
BRIDGE DESIGNERS
DESIGNER DRAFTSMEN
RESIDENT HIGHWAY ENGINEERS
Experienced men wanted. State qualifications, age, salary and date available in first letter. Location, Western Pennsylvania.

P-9982, Engineering News-Record
330 W. 42 St., New York 18, N. Y.

GOOD POSITIONS FOR
ENGINEERS, DETAILERS AND DRAFTSMEN
On Sewage, Water, Highway and Traffic Projects
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GANNETT FLEMING CORDDRY & CARPENTER, INC.
Harrisburg, Pa.

DRAFTSMEN • DESIGNERS • ENGINEERS

needed for essential work on the national Atomic Energy Program at

THE LOS ALAMOS SCIENTIFIC LABORATORY

Los Alamos, New Mexico

operated by the

UNIVERSITY OF CALIFORNIA

for the

Atomic Energy Commission

In The Mountains of Northern New Mexico

- 2 DAYS CUMULATIVE PAID VACATION PER MONTH
- 1½ DAYS CUMULATIVE PAID SICK LEAVE PER MONTH
- HOUSING AVAILABLE AT REASONABLE RENTAL
- MOVING EXPENSES PAID

Write to

E. W. Doty, Los Alamos Scientific Laboratory,

Los Alamos, New Mexico

CONSTRUCTION SUPERINTENDENT

Experienced in construction of Blast Furnaces. Must be a good organizer, able to handle labor and qualified to exercise executive ability. Compensation commensurate with ability of individual.

Write and furnish full information regarding education, training, chronological details of experience, age, salary expected, etc. All replies will be considered strictly confidential.

P-1102, Engineering News-Record
330 W. 42 St., New York 18, N. Y.

WANTED

Experienced Pile Driving

SUPERINTENDENT

Now employed, seeking advancement—American—under 40 years old.

Opportunity for permanent employment in Eastern States.

Salary $300 weekly and expenses.

Reply P-1305, Engineering News-Record
330 W. 42 St., New York 18, N. Y.

WANTED

Experienced Structural Design Engineer

for permanent position. College graduate, with approximately four years experience in industrial plant construction, desired. Applicants please state age, education, previous experience and salary desired.

AMERICAN ENKA CORPORATION
Enka, (near Asheville) N. C.

WANTED

ENGINEERS

. . . to train as . . .

Industrial Consultants in Fire Protection Engineering

full pay to start—complete training field engineering with top U. S. and Canadian industry—usual pension and other benefits. Permanent.

Write complete qualifications to

P-9609, Engineering News-Record
330 W. 42 St., New York 18, N. Y.

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WANTED

EXCELLENT OPPORTUNITY FOR MEN EXPERIENCED IN ESTIMATING COMMERCIAL AND INDUSTRIAL CONSTRUCTION. STATE AGE, EXPERIENCE AND SALARY EXPECTED. ALL REPLIES CONFIDENTIAL. *ADDRESS*

P. O. BOX 2091 **JACKSONVILLE 1, FLORIDA**

CONSTRUCTION SUP'T & ENGINEER

Technical college graduate well-exp'd in building construction & installation of equipment; willing to travel to locations in United States. State age, salary expected, experience in detail and date available to begin work. Write:

Box ENR 296, 221 W. 41 St., N. Y. 18, N. Y.

HIGHWAY ACCOUNTANT

WANTED

Accountant experienced in highway accounting and knowledge of Spanish language wanted for Ecuador, South America. Minimum 2 year contract. Salary $6,000. Send experience records, references, etc.,

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Washington, D. C.

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College House Offices - Dept. E.
Harvard Sq. Cambridge, Mass.

POSITIONS VACANT

(Continued from page 126)

WANTED CHEMIST, Chemical Engineer or Metallurgist, capable of taking full responsibility for process control and initiating a limited research program in nonferrous metal production. Location southwestern New England. Replies which will be held in strict confidence should state age, experience, salary expected and when available. Citizenship required. P-1374, Engineering News-Record.

WANTED LIME Plant Supervisor: Experienced in lime, cement or allied industry. Capable of taking charge of production and maintenance. Citizenship required. Location 70 miles north of New York City. Replies which will be held in strict confidence should state age, experience, salary expected and when available. P-1375, Engineering News-Record.

DRAFTSMEN FOR rapidly expanding Steel-Weld Fabricating Division, experienced in design and detail of Steel Weldments with knowledge of Structural Steel Design. Apply by letter only, stating age, experience, technical training and salary desired. Write The R. C. Mahon Co., Chief Engr., Steel-Weld Division, P.O. Box 1666, Detroit 34, Michigan.

ENGINEERS, DESIGNERS, and Draftsmen for Sewer and Sewage Treatment Plant Design. Several positions open in new Design Department. Sanitary District of Indianapolis, Indiana.

WANTED: CHIEF Engineer with supervision drafting room; Structural, plate and miscellaneous fabrication. Excellent location in North Carolina. In replying give full particulars as to experience, education, other qualifications and salary expected. P-1323, Engineering News-Record.

WANTED: EXPERIENCED Estimator for General Contractor's Office in Pittsburgh engaged in building construction. Good working conditions and chance for advancement. P-1325, Engineering News-Record.

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Frequently, when there are many applicants for a position, only the most promising letters are acknowledged. The other applicants never know whether their letters reached a prospective employer or not. These men often become discouraged, will not respond to future advertisements and even question their bona fide character.

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SALES OPENING: Sales engineer for conveying and weighing equipment, also compressors, in Tri-State area. Location Pittsburgh. Small company. Excellent opportunity. SW-1324, Engineering News-Record.

SALESMAN WITH established following for prominent lumber yard to contact general contractors in New York City. Must be real go-getter, capable of producing substantial business. Write stating age, salary desired, and past connections. (Confidential). SW-1339, Engineering News-Record.

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CHIEF ESTIMATOR—General Superintendent-Project Manager: Available to General Contractor with right proposition. Currently associated with large General Contractor but desirous of change. Salary in $15,000.00 per annum bracket. PW-1092, Engineering News-Record.

ENGINEER—B.A. degree. Single. 3 years experience in supervision of aircraft maintenance and heavy equipment. 5 years experience in hydraulic engineering. Fluent Italian. Desire foreign position in engineering sales field. PW-1098, Engineering News-Record.

SUPERINTENDENT OR General Foreman 28 years experience concrete field batch, crushing, block, and precast. Placing and handling heavy construction. PW-1109, Engineering News-Record.

EQUIPMENT SUPERINTENDENT, 50. Over 20 years experience operation and maintenance of heavy equipment. Well experienced heavy rigging, dirt work and underground installations. PW-1242, Engineering News-Record.

ARCHITECTS-ENGINEERS. Field Superintendent representative, desires position of mature trust and responsibility. Excellent reference, varied experience. Salary above ordinary. PW-1313, Engineering News-Record.

CONSTRUCTION SUPT. and Engineer, extensive experience in subdivision housing including surveying, estimating, purchasing, and actual const. and layout. Degree in E.E. Available Sept. 1. 2500 Lavete Lane, Pueblo, Colorado.

QUARRY SUPERINTENDENT. Production Manager, experienced operator in trap, granite and limestone, thoroughly familiar modern practice producing ferrick stone, riprap, asphaltic and concrete aggregates, agglime. Married, 48 years old, available immediately, any location if salary in line. Excellent references. PW-1398, Engineering News-Record.

FOREIGN WORK desired by Project Manager, Office Manager, Office Engineer, Personnel Manager, Heavy Equipment Superintendent, Excavation Superintendent, Piping Engineer, Construction Superintendent, Purchasing Agent, and other highly qualified personnel, familiar with all Government procedures, CPFF, and lump sum contracts, management, and administration. Presently affiliated with major construction company doing heavy industrial construction, are interested, and will be available on or about August 1st. Prefer foreign assignment in South America, Central America, Pacific Islands, and Southeast Asia. Competent in handling native labor and crafts on major construction project. PW-1311, Engineering News-Record.

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Experienced Construction Executive qualified to negotiate construction contracts for reputable company.

Established entre with most government agencies. Familiar with their procedures and regulations.

RA-1386, Engineering News-Record
330 W. 42 St., New York 18, N. Y.

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To be held on property of James E. Sheldon Highway Route 6, 1½ miles east of Belvidere N. J.

Well known equipment such as Caterpillar and International bulldozers, straight and angle blades. Caterpillar Auto Graders. Shovels ⅜ yd. to ¾ yd. with various attachments.
HD19 Allis-Chalmers Tractors withdrawn.

Portable compressors. Road Rollers. Mixer truck. Dump trailer. Wagon Drills. Carryalls. Pumps. 10,000 ft. of unused cable. various sizes and many other items.

Full details and description upon request. write James E. Sheldon. 2244 Third Street. Easton. Pa.

POSITIONS WANTED

BUILDING SUPERINTENDENT, estimator, or general foreman, 22 years experienced in all types of buildings, age 42 years, married, free to travel, now employed, available in 30 days, would consider profit sharing basis, or will buy interest. PW-1315, Engineering News-Record.

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CIVIL ENGINEER, P.E., 30 years engineering and architectural experience all types of heavy construction, housing, commercial structures, private and Government work. Design, bidding, contract negotiations, specifications, estimating, field and office supervision. Some foreign experience, languages. Wishes domestic or foreign assignment with owner, architect, builder or contractor where business experience and mature judgment are required. PW-1352, Engineering News-Record.

GENERAL FOREMAN. Age 40, desires position in Latin America. Proven experience in all types of welded steel construction. Previous Latin American experience. PW-1356, Engineering News-Record.

CIVIL ENGINEER, graduate, 40 years experience, contracting, engineering, industrial concerns. PW-1359, Engineering News-Record.

CONSTRUCTION ENGINEER, C.E. grad, veteran, 27, 5 years exp. in industrial bldgs. Last 3 in power plants. Grad. work in power engr. PW-1384, Engineering News-Record.

PIPING SUPERINTENDENT experienced in the installation and design of natural gas—Oil-Hydraulic and Power piping. Capable of complete responsibility—high degree of organizing through knowledge of men. 35 years of age. Available June 15 to July 1st. Phone Florida 1-3963 in Cleveland, Ohio. PW-1361, Engineering News-Record.

DIVER-FRANK HEFLING, formerly Chf. S.F. US or foreign work. Passport. Capable deep water. 17 yrs. const. salvage, surveys, special jobs outfitted. Record underwater torch. Modern phones, safety power compressor, single unit lifeline. Experience designer air lift, dredging, excavating, dewatering. Miami, Fla., 268 S.W. 8th St. Phone 3-8089.

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Buildings, Bridges, and Power Houses 40 derricks and hoists—24 cranes available

Large quantities of erection equipment

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$1,500,000 VALUE, LITTLE USED, RECONDITIONED, MODERN,

EARTH MOVING & PLATE FABRICATING EQUIPMENT

Subject to Owner's Acceptance or Rejection As Per Rules Posted at Premises

AT MANASSAS, VA. 15 Mi. SW of Washington, D. C. TUESDAY AUGUST 7 STARTING 10 AM DST

PARTIAL LIST OF THIS ALMOST NEW EQUIPMENT USED ON ONE OF THE INCH LINES

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6—HD-19-AC Berg Sideboom
3—TD-24 Int. Sup. Sideboom
11—TD-18 Int. Sup. Sideboom
3—TD-14 Int. Sup. Sideboom
1—D6 Cat. trackson Sideboom
1—D4 Cat. trackson Sideboom
4—HD-19-AC Baker H. Dozer
4—TD-24 Int.-angle, cable and bull
4—TD-18 Int. Angle and winch
5—TD-14 Int. Angle winch & bull
1—TD-13 Int. winch & high lift
3—TD-14 Int. winch & high lift
2—50-Cat Winch & high lift

TRUCKS

2—Hendrickson Diesel
1—KS Int.
1—KB5 Int. 50
1—KBR-12 International 47
2—KBR-11 International 47
2—KB6 International 47
3—GMC 6 x 6 Tank 44
6—Chev. 4 x 4 1½ T Army 44
10—2 ton Chev. Flat 50
4—2 ton Chev. Flat 49
2—2 ton Ford Flat 46
6—2 ton Dodge Flat 48
2—Dodge Power Wagon 48
4—44 Chev 4 x 4 Utility
2—50 Int. 1 ton
3—White Half Tracks
5—Auto Car 4 x 4 - 41

PICK UP TRUCKS

17—½ ton Chevrolet 1950
6—48 Willys Jeep

SPARES

Spares of metal parts for most of these fine pieces of equipment

30" WELDED PIPE

Lot of 30" welded pipe casting of odds & ends

DITCHERS

2—51 Buckeye, tracks & conveyor
4—48 Buckeye, tracks & conveyor

HOES—DRAGLINES—CRANES

4—¾ yd. Lorain, truck & cat mounted
2—½" P & H Insley—hoe & drag

DOPE POTS

1—125 bbl. Smith on Lowboy trailer
6—35 bbl. Smith on tracks, air comp. etc.
3—25 bbl. Smith on tracks, air comp. etc.
2—12 bbl. Smith on tracks, air comp. etc.

WATER PUMPS

4—6" Jaeger, gas driven
3—6" Gorman Rupp, gas driven
7—4" Gorman Rupp, gas driven
1—3" Gorman Rupp, gas driven
1—2½ Gorman Rupp, gas driven
1—3" Marlow, gas driven
1—2" Garver, gas driven

DRAGLINE BUCKETS, CLAMS, ETC.

1—¾ yd. Petty Bone Mullikan Clam
1—¾ yd. Hendrix Dragline Bucket
2—½ yd. Kesler Clam Bucket
1—½ yd. Link Belt Dragline Bucket

ROOT RAKES

1—Southern Welding for Int. TD-18 Dozer
1—Southern Welding for Cat HD-7 Dozer

ROAD BORING MACHINE

1—Young Under Road Machine

TRAILERS

2—Hobbs—8-tire
1—Hobbs 40 ton Lowboy
1—Shop 60 ton Lowboy
1—Hobbs single axle
1—Hobbs Tandem

WAGON DRILLS—JACK HAMMERS

2—I.R. Twin wagon drill
1—Cleveland Twin Wagon Drill
18—Jack Hammers
10—Pavement Breakers
2—Tampers G.D.
1—Lot Drill steel, buts, hose, repair parts, etc.

DRILL RODS—SUPPLIES

Large store of hard-to-get supplies—drill rod, etc.

WELDERS

37—200 amp Lincoln, gas driven
10—300 amp Lincoln, gas driven

BENDING MACHINES

1—X31 Coody 30"
1—X33 Coody 30"

AIR COMPRESSORS

1—500 C.F. I.R.—pneumatic tires—Diesel
2—500 C.F. Jaeger—pneumatic tires—Diesel
2—315 C.F. Schram, half-tracks—Diesel
2—210 C.F. Schram, pneumatic tires—gas

CUTTING—GAS WELDING

10—Combination Cutting & Welding sets—Torches and gauges

PIPE CRADLES

11 Sets—Crose 26"—31"

YOKES

4 Sets (single tree)

SLINGS

30—Crose Pipeline belt slings

CUTTING & BEVELING MACHINES

7—Crose 30"

HAND INTERNAL CLAMPS

9—Crose 30"

OUTSIDE WELDING CLAMPS

8 Sets—30" Tipton

AUTOMATIC RELEASE TONGS

7—Type CT 300-2-7-30" Cardwell Automatic

LIGHT & POWER UNITS

2—Hohler 1M21—60 cy.
1—Sterling—60 cy.
1—Int. U1—60 cy.

MISCELLANEOUS

1—I.R. 2½ Pneumatic Pump
1—48" Mall Cahin Saw

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Hundreds of items of small tools too numerous to mention

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INSPECTION JULY 16th TO DATE OF SALE — WIRE, WRITE OR PHONE FOR INFORMATION

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PHONE AT PROJECT MANASSAS 490

Additional Auction Advertisement on page 129

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OFFERS

AIR COMPRESSORS

Schramm 105 cubic foot gas powered compressor on 4 steel wheels.
Ingersoll-Rand 105 cubic foot, Waukesha gasoline power, on two rubber tires.
Gardner-Denver 160 cubic foot gas powered compressor on 4 steel wheels.
Worthington 210 cubic foot, two-stage, air-cooled, on steel wheels with Hercules diesel.
Pennsylvania 12" x 10" class 3A single cylinder, 355 cubic foot P.D., flat belt driven 50 HP slip ring motor.
Worthington two-stage, water-cooled, vertical 250#, 60 CFM, new condition.
Paving breakers, jackhammers, wagon drills, tie tampers.

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4033 Cedarapids hammermill, rebuilt.
10x7 Allis-Chalmers Blake type jaw crusher.
#1 Cedarapids Kubit impact breaker.
42" x 24' revolving screen.
18" x 90' bucket elevator.
50-ton, 2-compartment, 8'x18' storage bin with clamshell gates.
Conveyors—18"—24"—30"—36". Also belt.

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1½-ton Ford with any body.
2½-ton GMC, rebuilt.
1949 White Model WC26 dump trucks, new condition.
2000-gallon tanks on semi-trailer mounting.
New and rebuilt dump bodies.
2,000 gallon tanks on semi-trailer mounting.

GENERATORS & LIGHT PLANTS

1½ KW to 125 KW, alternating and direct current, gasoline and diesel powered.

GASOLINE AND DIESEL ENGINES

Buda, Hercules, Hill diesels, rebuilt.
New and rebuilt Murphy diesels.
GM 6 and 12 cylinder diesels, practically new.

SHOVELS—CRANES

Lorain L-50K 1-yd. diesel. New.
Lorain 55B gas powered crane.
Lorain 30 gas shovel-hoe.
Brownhoist 1-yd. gas shovel and crane.
Universal truck crane.

SHOVEL & CRANE ATTACHMENTS

Lorain 41 shovel attachment new condition.
Lorain 40A shovel attachment complete.
P&H 203 shovel attachment.
Chain crowd Lorain 30A shovel attachment.
Lorain 40 Hi-Lift shovel attachment.
Bucyrus-Erie 1½-yd. rock bucket.
Lorain 75 fairlead.

Backhoe Buckets & Attachments

¾-yd Lorain, 40, LBS #8105. 44" cutting width, teeth, sheave.
28" outside width solid bottom type LBS #4377, good condition.
¾-yd Amsco 40" cutting width, LBS #8101.

CLAM—DRAG—SCRAPER BUCKETS

NEW TAGLINES

McCaffrey Model 648 for 1¼ to 2-yd crane.
McCaffrey Model 636 for ¾-yd to 1-yd crane.

SHOVEL DIPPERS

Lorain 41, ¾-yd. LBS #8600, rebuilt.
New Lima 1-yd, Amsco, LBS #2295.
Bucyrus-Erie 1¼-yd gas air, LBS #3782, fair.
Lorain 75B, 1½-yd. manganese bucket, LBS #8538.
Lorain 75B, 1¼-yd extended lip, 1¾-yd LBS #2260.
Pettibone-Mulliken 2-yd Lorain 82 or 820, manganese, LBS #5361.
Pettibone-Mulliken 2-yd for 3500 Manitowac LBS #5783.
Esco 2½ yd cast weld dipper with bail & teeth

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Concrete Finishers

Jaeger type "L" double screed, 10½'-12½', rebuilt.
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2 Koehring 10'-12', rebuilt.

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R.B. Fine Grader for 21' width, rebuilt.

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Cleveland formgrader, new 1944, rebuilt.
Carr formgrader, new 1944, rebuilt.

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Sanderson-Cyclone #42 well drill, new.
Sanderson-Cyclone #44 well drill, new.
Bits—Stems—Bailers—Sockets—Etc.

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Barber-Greene 44C Trenching Machine 18" to 24" cutting width, 7' depth.

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New Warco D7B tandem driven grader, 12' blade, V-type scarifier, 13.00x24 tires all around, 24,500 lbs., International UD14A diesel engine.
Austin Western 77 tandem drive, scarifier, 12' blade, gas power, hydraulic controls.

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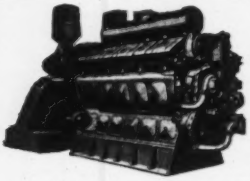

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1250	General Motors	16-278A	1600	720	312	General Motors	8-268A	450	1200
937.5	General Motors	12-567	1080	720	312	Clark	MD-4	375	327
625	Alco	6-12¼x13T	750	600	125	General Motors	3-268A	150	1200
425	Baldwin	VO-6	510	450	75	General Motors	6043C	90	1200
400	Buckeye	80	480	600	62.5	Int'l Harvester	UD-18	76	1200

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105 CFM INGERSOLL (Gas) 2 & 4 Pneu
160 CFM WORTHINGTON (Gas) Skids—4 Pneu
210 CFM WORTHINGTON (Gas & Diesel) 3 Pneu
210 CFM GARDNER DENVER (Gas) Skids 4 Pneu
315 CFM INGERSOLL (Diesel) 4 Pneu
315 CFM WORTHINGTON (Gas) 4 Pneu
315 CFM LeROI (Gas) 4 Pneu
500 CFM WORTHINGTON (Diesel) 4 Pneu

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Stationary—Portable
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All sizes—All makes

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American Air Compressor Corp.

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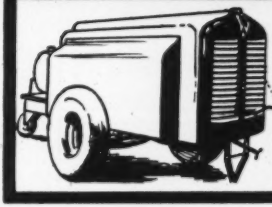

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P&H 255A 20 Ton Truck Crane. Excellent.
Koehring 304 20 Ton Truck Crane. Excellent.
Michigan TLDT Truck Crane 12 Tons. Bm 50'.
Northwest Model 6. 1½ yd Diesel Shovel.
Lorain 820. 2 yd Shovel-Crane, Diesel, 1947.
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P&H 255-A ¾ yd. Diesel Shovel.
Lima 1201 std. Diesel Shovel, 3½ yds.
Buc-Erie 1 ¼ yd. Shovel-Crane-Dragline, Diesel.
P&H 855, 2 yd. Diesel shovel
Link-Belt K-580, Diesel Shovel, 3 yds.
Koehring 604 Crane-Dragline 1½ yd. Diesel.
Link-Belt K-595 Dragline, 2½ yds. Diesel.
Lima 31, Paymaster, ¾ yd. Diesel Shovel. Excellent

CONCRETE PLANTS—BINS & SILOS

B-K 400 Bbls. Cement; 125 Tons Agg. Complete.
Erie-Strayer ½ yd. and 1 yd. Plants.
Mixer-mobile Plant. Complete for full operation.
Cement Silo 1573 Bbls. C. S. Johnson.
B-K 300 ton 3 compt. aggre. 250 bbl. cement
B-K 110 bbl. bulk cement bin Richardson scales.
Johnson 4-compt. agg. 2 Cement, 4 yd. batcher with 868 bbl. bulk cement silo.

ASPHALT PLANTS

B-G Model FA, 1½ ton, Port. Diesel.
Hetherington-Berner Heavy Duty Moto-Paver.
Model M-20 Bituminous Monotrol Plant.
Cedar Rapids Travel Mix Plant 100-150 tons.
B-G Model 848 "Travel Plant".
B-G 842 Port. Utility Plant. Complete.
Littleford 1000 gal. Distributor on Int. Truck.

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Steel 35' stiff leg derrick 100' boom.
American 20 ton stiff leg derrick 90' boom.
Stiff leg derrick 15 ton 100 ft. boom.
American 20 ton Guy derrick 100 ft. boom.
Stiff Leg derrick 15 ton 65 ft. boom.

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Koehring 31-E Twin Batcher Paver.
2 Ransome 31-E Dual Drum Pavers Diesel.
Rex 28-S Builders Mixer, Elec. New 1947.
28-S Ransome Builders Mixer, Elec.
Koehring 56-S stationary Mixer, New '50.

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Vulcan and McKiernan-Terry
Steam Pile Hammers and Extractors
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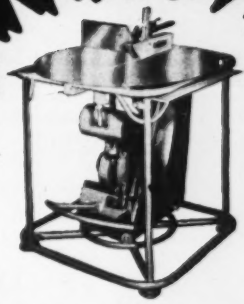

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#6 NW shovel, #7100, D13000.
#6 NW shovel, #8900, Murphy.
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FS-1319, Engineering News-Record
330 W. 42 St., New York 18, N. Y.

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2 Tractors—HD 14
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1 Backhoe Attachment for 38B Bucyrus Erie Machine
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Lorain 75B—1¼ yd Shovel

with gas engine. Advise best cash price, condition, location, serial #, in first letter.

W-1275, Engineering News-Record
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Mounted on 30' x 90' Wood Scow
50 H.P. Boiler, 55 Foot Boom. Low Price.

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RAILROAD EQUIPMENT: 4 Nordberg Adding Mach.; 3 Spike Pullers; 3 Power Wrenches; 17 M.T.-I.R. Tie Tampers; 4 K.L.A. Barco Tampers; 4 I.R. Compressors, Railroad Mountings.
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REX DUAL DRUM PAVER

Model 34E. Model duomatic, powered with 6-cylinder gasoline engine. Rex mechanical man, batchmeter, 35' distributing boom. Serial #GG-126. Completely reconditioned, ready for paving. Price on application, subject to prior sale. Can be seen at our Philadelphia warehouse. Write, wire, visit.

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Railroad Plate Girder Bridge now in use as Highway Bridge with temporary timber foot bridge for pedestrians on outside of one girder. Overall length 106'. Roadway width 11'. Clear width between girders at top 15'. Loading E40 at 18,000 pounds. Located Sault. Ste. Marie, Michigan. Available for shipment, September, 1951.

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Lorain Model MC-4 Moto Crane, 30' Boom, 2-20' inserts, 1-15' Jib. Precision Lowering Device
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Recently rebuilt **Price: $17500.00**

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Unused Equipment

1—600 Bbl. Standard Cement Bin, Portable, Contractor's type, complete with motor & elevator.
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Compressor mounted on rubber, has International Diesel Engine. This Compressor only slightly used and in excellent condition.

FS-1292, Engineering News-Record
330 W. 42 St., New York 18, N. Y.

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Minneapolis Moline UTI with Lull 4C Loader, ¾ yd. bucket, cwt. box on rear—excellent condition.

G-M 1-71RA Diesel power unit with electric starter and battery charging generator, Vee belt pulley.

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Engineering design and construction tests run from MOBILE LABORATORY UNITS at construction site. Field load bearing tests.
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Consult them when necessary.

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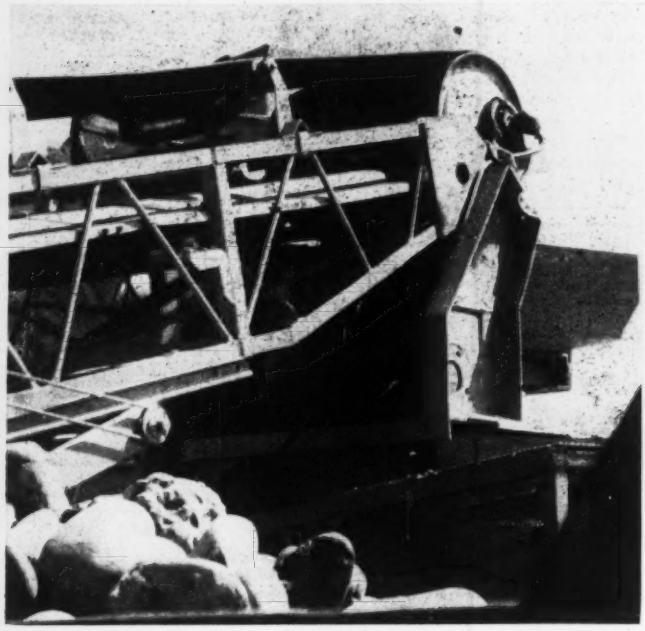
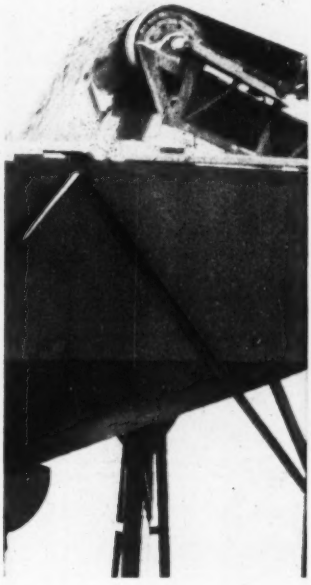
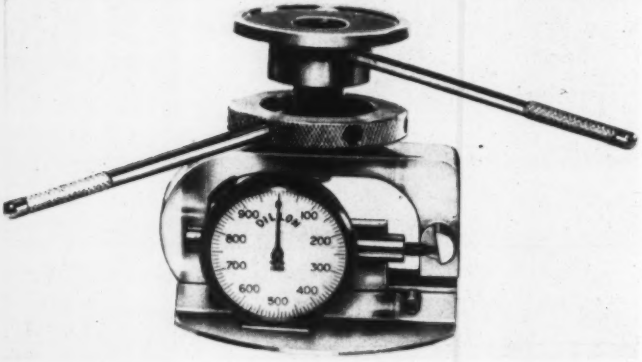




Motorized head pulleys are safer, more compact, and need less maintenance

A flat-belt head pulley with no sprockets, on chains, no chain oil, no V-belts, no jack shafts, no dirt in the works. Sounds fantastic? It's not. The result of three years' testing and proving on heavy equipment, it's compact, economical, safe, simple to install and requires only minimum maintenance. The headpulley is a steel drum which contains a motor and reduction gears. A torque arm on one end prevents the motor from rotating and a stationary conduit enters a hollow hub on the opposite side. Two oil-tight partitions contain the reduction gears and front bearing of the motor in a lubricating oil bath, protecting all moving parts from grit and weather. S. A. E. 40 oil is used in summer and 30 weight in winter. Rest of maintenance program is limited to greasing rear motor bearing and changing drum oil once a year; check oil level in drum and grease pillow blocks once a month. That's all. As easy to install as a regular head pulley, it also takes up no more room. Pictured above is largest one made to date—60 hp—for Morrison-Knudsen Co's world's largest crushing plant at Granite Canon, Wyoming. In use there for two years pulling a 42-in. belt 420 ft long, it carries 125 tons per hour. Manufacturer claims any size available. IDAHO SPROCKET AND MACHINE WORKS, WARM SPRINGS AVE., BOISE, IDAHO.



Jack for pressure gauge

The job of checking pressures in vise jaws, clutch assemblies, crowd mechanisms, moving rollers etc.; with a Dillon Pressure Gauge has been simplified by a new jacking assembly. The mechanism, by its structure, permits perfectly square application of loads and compressive forces. As little as 0.039 in. deflection is sufficient to give reading. Only minimum effort is needed on handles which fit into holes in adjustment nut. Parts are all plated and hardened, and reading is in pounds. W. C. DILLON & CO., INC., 1421 S. CIRCLE AVE., FOREST PARK, ILLINOIS.

(Continued on page 143)

To Control Leakage these Pontoon Tide Gates use BYERS WROUGHT IRON PLATES

An interesting solution to leakage control into intercepting sewers is found in the new pontoon tide gates used at Owl's Head Sewage Treatment Works. These gates were developed by the Krajewski-Pesant Manufacturing Company and approved by the City of New York, Department of Public Works. Installed at points where the sewers empty into the harbor, the gates open when the sewage flow is above normal, as it might be during a storm. At other times, the gates are closed, preventing back-flow from the tidal basins. Containing 14 watertight compartments, continuously welded, the gates have sufficient buoyancy to permit opening under a 2-inch differential head. This "floating" feature prevents excessive backing-up of flow in the sewer system.

These gates face a double hazard, as both the sewage and the brackish and salt water are highly corrosive. To combat this condition, the contractors selected genuine wrought iron in place of the low-first-cost material, which had been originally specified. This choice was approved by the City's engineers. One of the six gates, all of which used wrought iron flaps, is shown above.

Our bulletin, WROUGHT IRON FOR SEWAGE TREATMENT AND DISPOSAL INSTALLATIONS, gives a concise but comprehensive story of how wrought iron is reducing maintenance in dozens of services. We'll be glad to send you a copy.

A. M. Byers Company, Pittsburgh, Pa. Established 1864. Boston, New York, Philadelphia, Washington, Atlanta, Chicago, St. Louis, Houston, San Francisco. Export Division: New York, N. Y.

Why Genuine Wrought Iron Lasts

This notch fracture test specimen illustrates the unique fibrous structure of genuine wrought iron—which is responsible for the high corrosion resistance of the material. Tiny threads of glass-like silicate slag, distributed through the body of high-purity iron, halt and disperse corrosive attack, and discourage pitting and penetration. They also anchor the initial protective scale, which shields the underlying metal.

BYERS

CORROSION COSTS YOU MORE THAN WROUGHT IRON

WROUGHT IRON

TUBULAR AND HOT ROLLED PRODUCTS

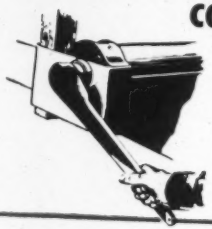
ELECTRIC FURNACE QUALITY ALLOY AND STAINLESS STEEL PRODUCTS

UNLOAD IN 2 MINUTES FROM A FRUEHAUF WITH *Lumber Roll-offs!*

HERE'S an ideal Trailer for the lumber dealer, construction company or builder. Specially adapted to hauling planks, it steps up deliveries by speeding unloading time — cutting man power to a minimum. It's a perfect example of how Fruehauf builds specialized hauling equipment at "production line" prices.

If you have a hauling problem, let your local Branch man show you the Fruehauf for the job.

ROLL-OFFS MAKE ONE MAN A COMPLETE CREW!



This easily operated roller moves the whole load with speed and safety. One man operated, it speeds unloading, is locked while Trailer is under way.

★ ★ ★

A NEW CATALOG

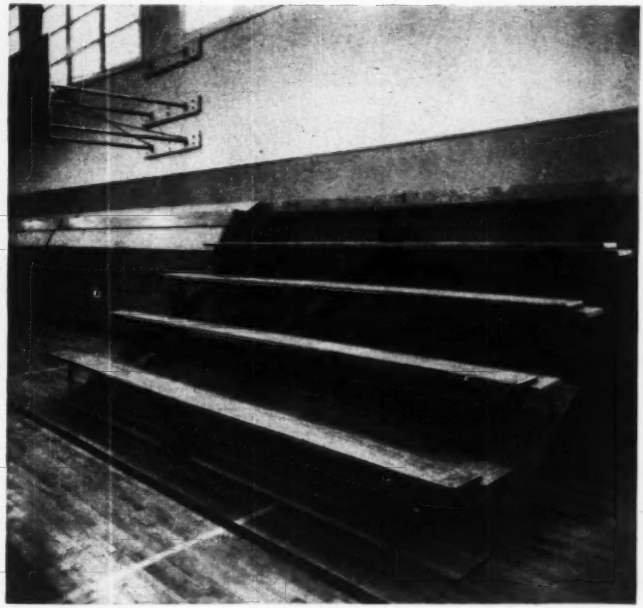
Here's the new Fruehauf catalog — *available free.* It covers the complete Fruehauf line, illustrated and described. Write Fruehauf Trailer Co., 10965 Harper Ave., Detroit 32, Michigan, or see your local Branch man.

HERE'S THE FIRST FRUEHAUF TRAILER, BUILT AND DELIVERED TO SIBLEY LUMBER CO. IN 1914

This Trailer was an adaptation of the stake wagon, had hard rubber tires, no Supports. A far cry from the modern Fruehauf huskies of today!

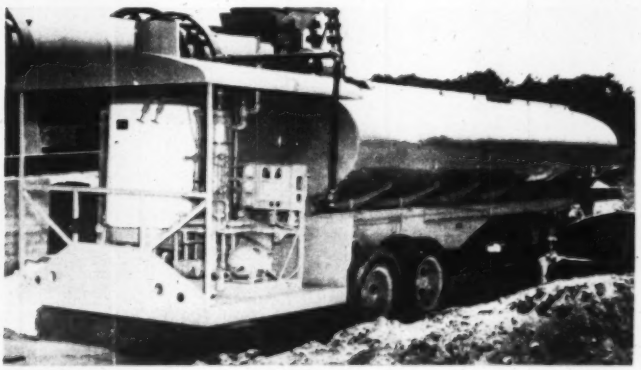
FRUEHAUF Trailers

WORLD'S LARGEST BUILDERS OF TRUCK-TRAILERS



Roll-away bleacher seats 5 to 14 rows high

Five-row, 16 ft section of removable gymnasium bleachers holds 55 persons, then frees 112 sq ft of floor space when folded back. Weight is distributed to double bolted hangars at wall, to plywood-covered I-beam at toe and at center where weight forces steel spring to engage lineal floor sleeper. Frame of Rollway bleacher is made from welded tubular steel units and seats are select 2 x 10 Douglas fir set 24 in. back-to-back. Other sections available up to 14 rows. Beatty Safway Scaffold Inc. Tunnel Ave & Beatty Rd., San Francisco 24, Calif.



Portable steam generator

Simply by moving in close to the job and hooking up a few steam lines, this 2500-gal diesel oil and boiler feed water service tank is ready to supply steam in 5 minutes through its 100 hp Clayton Forced Recirculation Steam Generator mounted on the rear of the tanker. Setup shown here was purchased by United Concrete Pipe Corp and set up in accordance with recommendations from Madsen Iron Works. Clayton Manufacturing Co., P. O. Box 550, El Monte, California.

Magnetic Color Samples

Magnetic squares of various paint samples are manipulated on a magnetized background for comparison of samples and for testing color harmonies, both interior and exterior. Called the Magnetic Color Bar, it has been used widely of late by painting contractors. Martin-Senour Paint Co., Chicago, Illinois.

Hot lacquer sprayer

High solid content lacquer, synthetic and other similar materials can be heated and sprayed in a new type gun called the Reliable Viscolator. Proper predetermined thermostatically controlled temperature is the answer, and this is provided by electricity, steam, or a combination of both. Heat reduces the viscosity of the spray material, thus requiring less thinner and a single pass finish equal in thickness to two or more coats of cold material, according to the manufacturer. Other advantages: less solvent waste, better coverage per gallon, fewer passes needed, better finish flow-out and no brushing. Pilot light indicates proper operation when in use. Reliable Products Mfg. Co., Inc., 123 DeKalb Avenue, Brooklyn 1, N. Y.

Mortar plane

Weighing only 1½ lb, this aluminum tool for applying mortar to masonry units is said to greatly speed work over a regular trowel method. Thumb screw on end adjusts height of gate for screeding contents as tool is pushed with a shaking movement. Kakest Co., Curwensville, Pennsylvania.

(Continued on next page)

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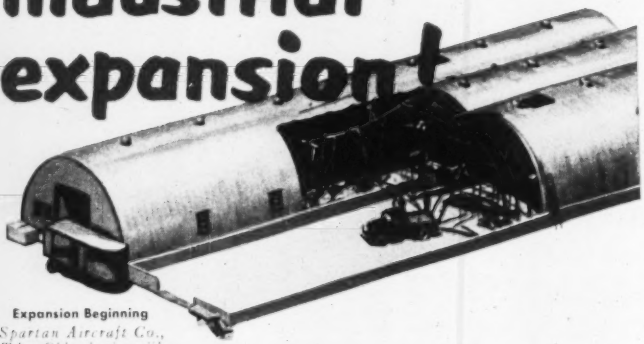
for fast industrial expansion



Expansion Beginning
Spartan Aircraft Co., Tulsa, Okla., begins with 15,200 square feet of floor area. Note completed building below.

Build Quicker with QUONSETS

IDEAL FOR FACTORIES, WAREHOUSES, MACHINE SHOPS OR STORAGE BUILDINGS

For additions to your present plant—or for new plants—Quonsets mean *fast* completion, economy of materials, adaptability to *any* use. Also, when plants need expansion, you can add Quonset to Quonset, according to the need.

Made of N-A-X HIGH-TENSILE steel, Quonsets provide non-combustible construction and permanence far surpassing less modern buildings. They require little upkeep—are easily maintained. Let Quonsets serve you.

GREAT LAKES STEEL CORPORATION
Stran-Steel Division, Ecorse, Detroit 29, Michigan

PRODUCER OF HIGH-STRENGTH STEEL

Expansion Completed
Additional Quonsets, with extensions and connecting arches, provide Spartan Aircraft Co. with a total of 35,600 sq. ft. of floor area.

NATIONAL STEEL CORPORATION

Stran-Steel and Quonset Reg. U.S. Pat. Off.

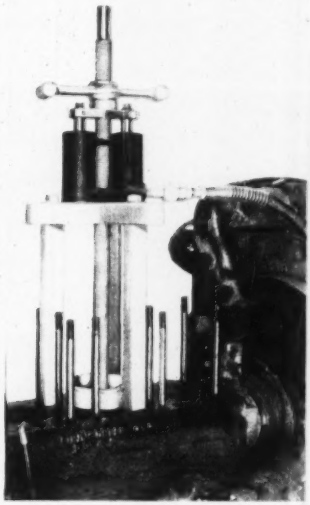
New Products . . .

Machinist's vise

This vise can be pulled up tighter and held more securely—with less pressure than is required by ordinary vises—is claim of manufacturer. Outstanding feature is a self-lubricating graphite-bronze thrust bearing located at the front of the sliding jaw. This absorbs thrust of the steel screw head, prevents wear and eliminates end play. COLUMBIAN VISE & MFG. CO., 9021 BESSEMER AVE., CLEVELAND 4, OHIO.

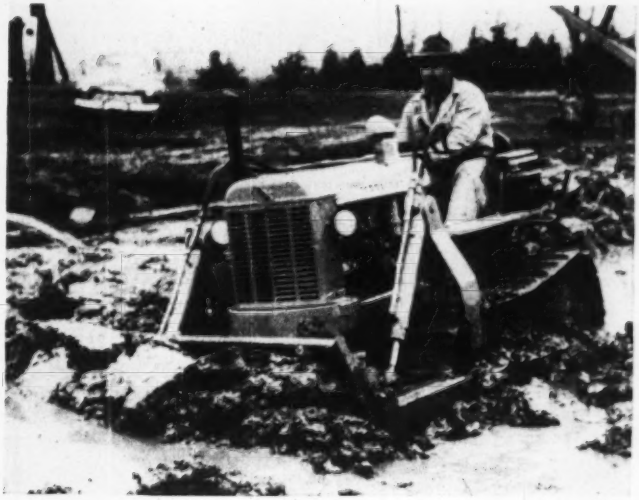
Truck crane boom

Available in 25-ft length with 5-ft extensions, new Bantam boom is said to have four times more rigidity than standard models, when used on company's 5-ton truck-mounted shovel-crane. This is due to heavier bracing and reinforcing. SHIELD BANTAM CO., WAVERLY, IOWA.



Hydraulic sleeve puller

Pulling and/or installation of cylinder liners on more than 200 different makes and models of trucks, tractors and power units has been reduced to a matter of minutes by use of this OTC Power-Twin Sleeve Puller, it is claimed. Adjustable enough to center perfectly over the bore and with high enough legs to clear longest cylinder head studs, it removes and installs sleeves from 3 to 6 in. Installing sleeve passes down through bore; then is screwed into bottom crosspiece forming an inverted T. Present pullers made by same manufacturer may be adapted with addition of few parts. OWATONNA TOOL CO., 380 CEDAR STREET, OWATONNA, MINNESOTA.



Lightweight tractor

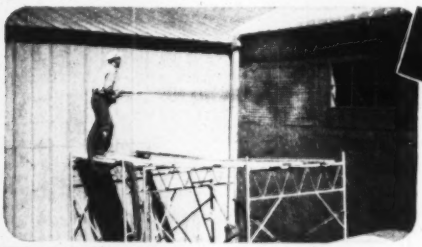
By using its second speed of 3 mph this crawler tractor accomplishes with speed and impact what heavier rigs do with creeper speeds and extra weight, says manufacturer of GT 30 Terratrac. Fully equipped with angle dozer or bulldozer, it still runs less than 4,400 lb. Rubber track shoes permit its increased use indoors as well as out. Interchangeable gauge widths range from 42 to 72 in. and it is supported by five lower track rollers. Army Engineers report officially its successful negotiation of 27-in deep swamps because of its extra ground clearance. Other accessories include bucket loader, winch and scoop, all hydraulically operated, as well as a unique three-point hydraulic lift system for rear mounted tools. American Tractor Corporation, Churubusco, Indiana.

Sleeve bolt fastener

When driven into a hole by a pneumatic tool, this expansion sleeve-type fastener expands into six prongs at the bottom of the sleeve with the bolt head automatically sinking below wood surface to prevent shearing or damage to materials passing over it. Made in sizes from ¼ in. to 1 in. diameter; lengths from one inch up; and with hex, round, square, flat or slotted heads, they eliminate need for nuts. Company offers free field demonstrations. Square Tool & Die Co., Chicago Drilelet Division, 1550 N. Fremont Street, Chicago 22, Illinois.

Vertical motor

Available in ratings from ½ to 5 hp., new vertical solid-shaft capacitor motors are announced with principal application on jet pumps and other assemblies for supplying water. Base is same dimension as on polyphase motors, permitting interchangeability without modification of the mounting. General Electric Company, Schenectady 5, N. Y.



Now! New Opportunities . . . New Profits for You

with the **BONDACTOR**

Whether You Call It

• SHOT CONCRETE • AIR PLACED CONCRETE

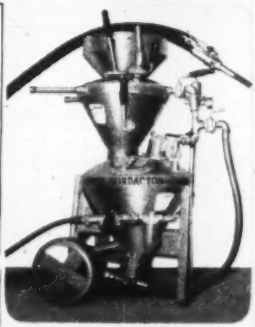
• PNEUMATICALLY PLACED CONCRETE

You Can Do It Better . . . More Profitably

with BONDACT Process Equipment

One of many uses is the application of Vermiculite concrete for insulation and fireproofing by a BONDACTOR, as shown here. Nozzleman is using the BONDACT Gun.

Model 1000 BONDACTOR inset at right.



Expand and Profit with BONDACTOR These 2 Ways

1. New Construction

Construction with the BONDACTOR is easier, faster, better. It costs less to build . . . and you profit more. *You* get the big savings in time, labor, money . . . and *you* keep the profits. What's more, you can take advantage of new methods and designs . . . and you can build without the use of many critical materials.

2. Repair and Maintenance

One unit does the whole job. Use the BONDACTOR for sandblasting, application of sand and cement concrete; insulating (Vermiculite and Perlite) concrete and plaster scratch coats; pumice concrete; refractories, including Haydite and Lumnite cement, ganister and fire clay, castable refractories; and other aggregates and materials.

Available to Meet Your Needs

Model #1000-S BONDACTOR Operates with a 105 CFM or larger air compressor.

Model #1000-L BONDACTOR Operates with a 210 CFM or larger air compressor.

To Save and Profit with the BONDACTOR, Act Now!

See Your Construction Equipment Distributor, or for FREE Catalog, Tear Off and Mail Coupon TODAY

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MANUFACTURERS' PUBLICATIONS

Loadsters—Both the Model LA-40 (especially designed for bulk materials handling) and the LM-75, (which handles bulldozer blade, crane hook and bucket with equal ease) are described in detail in twin booklets, four pages each. Side curtains on the latter rig make it usable in inclement weather. Rapid tilt-back feature on bucket permits not only scooping but also carrying of heaped loads.—CONTRACTORS' MACHINERY COMPANY INC. BATAVIA, NEW YORK.

Single-pass gravel plants—with capacities ranging from 20 to 65 tons per hour are included in Bulletin CP-1. Designed principally for counties and townships where use and constant mobility are demanded. Deck vibrator screen scalps off oversize and delivers it to crusher which can knock it down to 1 in. if desired. Crushed material is re-mixed with by-passed gravel. No re-screening or re-grading. DIAMOND IRON WORKS INC., MINNEAPOLIS 11, MINNESOTA.

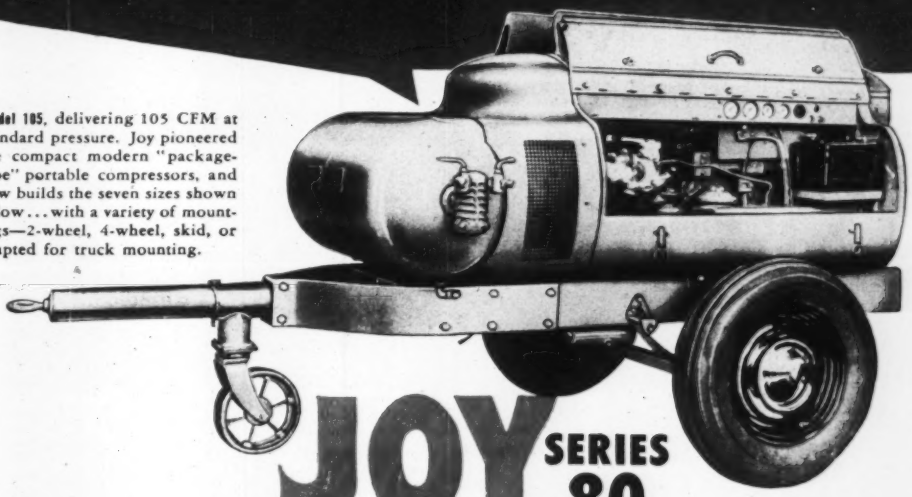
Tires—"9 Ways to Get More Miles out of Your Truck Tires" is the title of an 8-page booklet packed with tire conservation info. Selection, inflation, load distribution, matching and rotation are some of the subjects considered. Highly illustrated with photos and artwork, the booklet's last page has a concise section on tire loads and inflations. B. F. GOODRICH CO., AKRON, OHIO.

Flow control valve—Uncertainty and guesswork in regulation of oil flow to any type of burner is dangerous business. This four-page circular explains the Hauck Micro-Cam Valve and how it provides positive uniformly-graduated oil flow, manually or automatically. HAUCK MFG. CO., 124-136 TENTH STREET, BROOKLYN 15, NEW YORK.

Lube chart and Operator's guide—Two offerings of Hyster company make available to those desiring them an operator's guide for D7N towing winch (on Caterpillar D7 tractors) and a 26-point lubrication chart covering eight of the company's industrial truck models. The winch manual, in four sections, describes its mechanics, rigging methods, winching terms and phraseology as well as unique solutions to problems encountered in woods or difficult terrain. The lube chart folds up to pocket size, recommends certain types of oils and greases on all service points. The winch booklet is Form No. 1184; the lube chart No. 1102. HYSTER COMPANY, 2902 N. E. CLACKAMAS ST., PORTLAND 8, OREGON.

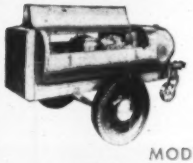
Portable

Here's AIR POWER at Lowest Cost and Topmost Efficiency

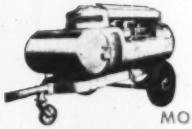


Model 185, delivering 105 CFM at standard pressure. Joy pioneered the compact modern "package-type" portable compressors, and now builds the seven sizes shown below... with a variety of mountings—2-wheel, 4-wheel, skid, or adapted for truck mounting.

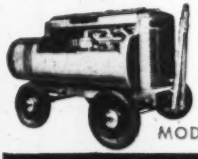
JOY SERIES 80 PORTABLE COMPRESSORS



MODEL 60



MODEL 160



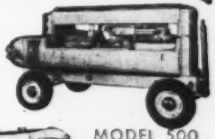
MODEL 210

Compare these Features!

- ★ 2 STAGE COMPRESSION
- ★ AUTOMATIC "ECONO-MISER" LOAD CONTROL
- ★ SEVEN SIZES—60 TO 630 CFM
- ★ NOTHING TO MATCH THEM FOR MODERN, COMPACT DESIGN—PORTABILITY—RELIABLE AND EFFICIENT OPERATION

WRITE FOR BULLETINS!

MODEL 315



MODEL 500

MODEL 630

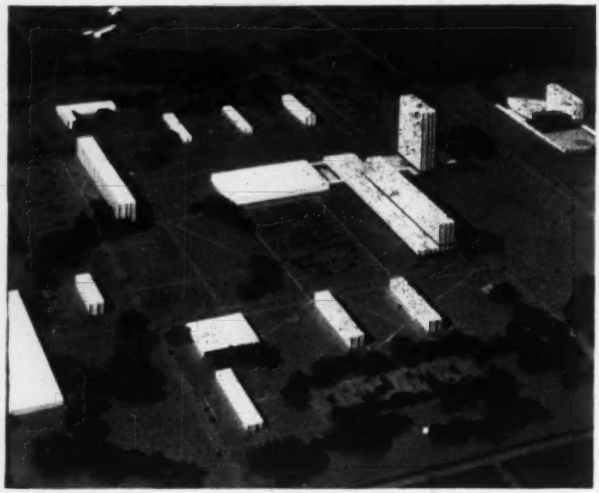
W&D C-2074

Consult a Joy Engineer

JOY MANUFACTURING COMPANY

GENERAL OFFICES: HENRY W. OLIVER BUILDING · PITTSBURGH 22, PA.

IN CANADA: JOY MANUFACTURING COMPANY (CANADA) LIMITED, GALT, ONTARIO



A MODEL GOVERNMENT CENTER—New York State's crowded bureaucracy has this up to date center planned for it, featuring 13 office buildings and a service group of four buildings. A 20-story structure will house the growing Labor Department. As a separate project, a proposed auditorium (now a storm center) may be seen in the upper right hand corner. The photo by Louis Checkman is from the engineers' model.

The inadequate office

How Albany plans to file its clerks

Has your local government outgrown its housing?

If so, it is not the exception, but the rule. Today administrative centers—be they national, state or local—are crowded and cramped within the available quarters of older centers.

Now that governments are expanding to take on functions undreamed of only a decade ago, provision of expanded office space has become not only difficult (available space being far short of demand) but costly.

• **Unearned increment**—Big expenses stem from spiraling real estate costs and demolition problems. Often unavoidable under these conditions is haphazard location of offices or the painful and inconvenient makeshift of converting old buildings to new and unintended uses.

Solutions have included complexities like the Pentagon in Washington, and even Fascist Rome's conversion of its unused 1942 World's Fair grounds into offices to take government bureaus out of the palaces of the ancient city.

But in the U. S., where the decentralization of Washington is in the talking stage it becomes apparent that there is a movement underway towards bureaucratic "parks" located on the outskirts or in the suburbs of capital centers.

• **Albany follows a trend**—As if to follow an inevitable design, New York State is now considering plans to move its offices from crowded and illogical arrangement in central Albany to a well designed office center further out of town.

Albany's problem, in microcosm, is that of Washington or other world centers. For this reason it typifies questions faced in other regional and state governments seated in older cities. Like many another older state capital, Albany is a city of narrow streets, heavily built up in downtown areas, available office space is scarce, city transit haphazard and difficult.

Some measure of the New York State's problem can be condensed into one figure: 750,000 sq ft of additional office rental made necessary over the past five years by swelling ranks of state government employees.

Back in 1945, space rented by the state amounted to 411,312 sq ft. Today more than 1,161,972 sq ft are rented—this is an increase of 180% in five years.

Pretty fast, you say?

• **A quicker rise**—Not at all say those in the know, compared with costs that have soared 250% in five years.

For not only has office space gone up, but space costs have risen in that five year period by one third. Accepting such a rate of increase, the minimum promise of space cost based on today's $2.00 per sq ft would be $3.90 next decade.

Officials have more or less accepted this as fate. To sidestep problems of cost and space—as well as the demolition and real estate costs of intown property—is the building plan designed to create in the suburbs a miniature "Washington, D. C." on what is called in friendly tones "the campus site." (Just three miles from the center of town).

The development would centralize the state administration on a 353-acre site at a cost of $72 million.

• **Commuter convenience** — The area selected is bounded by two important traffic arteries from the business district—Western and Washington Avenues. To make it convenient to commuters, there is discussion of plans to move the Albany Station of the New York Central to a location near the center.

Consultants to master plan the job are Charles H. Sells, former superintendent of Public Works, New York, and Skidmore, Owings and Merrill, associates on the assignment. They have inspected the site on foot, by car and from the air.

Now they have emerged with a plan which suggests 13 office buildings to house 32 units of government plus a service group.

Initially the plan included an auditorium building to be located on a 76-acre plot, but municipal plans to build a city auditorium to house some city offices may interfere.

The new center will provide 2,390,000 sq ft of office space—enough for at least half a decade of growth,—at a cost of $3.00 per sq ft in amortization over 50 years.

ANOTHER BREAK IN THE DIKE!

Tough words to hear when you're battling a river on a rampage. But that's what happened during the recent disastrous floods on the Fraser River in British Columbia.

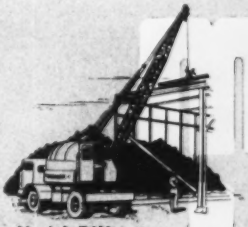
Perhaps you don't have to keep "rivers caged up," but that's an important job for Fraser River Pile Driving Co., Ltd. and their experience *again proves* the unusual mobility and handling ease of MICHIGAN cranes.

Says K. A. Matheson of the above company, "In the City of Mission on the Fraser River, the MICHIGAN cranes did a splendid job owing to their mobility and being able to get from one break in the dikes to another in very short order. In particular the TLDT-20 with remote control was a decided advantage, as it enabled us to do the same work with one less man when labor of this sort was badly needed on other flood-fighting work."

Regardless of your type of work, when you need an excavator-crane . . . investigate MICHIGAN . . . you'll agree it's your best buy!

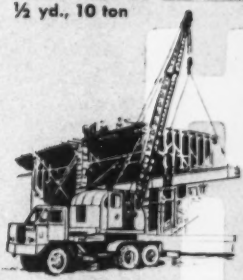
MICHIGAN POWER SHOVEL COMPANY

500 Second Street, Benton Harbor, Michigan, U. S. A.



Model T6K
⅜ yd., 6 ton

Model TMDT-16
½ yd., 10 ton



Model TLDT-20
12 ton

Series 8
½ yd., 8 ton

Model C-16
½ yd., 8 ton

New tug takes B-36 everywhere but up with help of TIMKEN® bearings

MANEUVERING giant B-36 bombers on the ground is easy work for this new Euclid tractor. It can travel forward, backward or sideways—pull fourteen times its own weight—has a turning radius of less than 17 feet. The hydraulically-controlled glass-topped cab can be raised and lowered, affords almost perfect visibility.

To help keep the tractor on the runways and out of the repair shop, and to carry the heavy loads, Timken® tapered roller bearings are used in the four drive wheels, the king pins and the differentials.

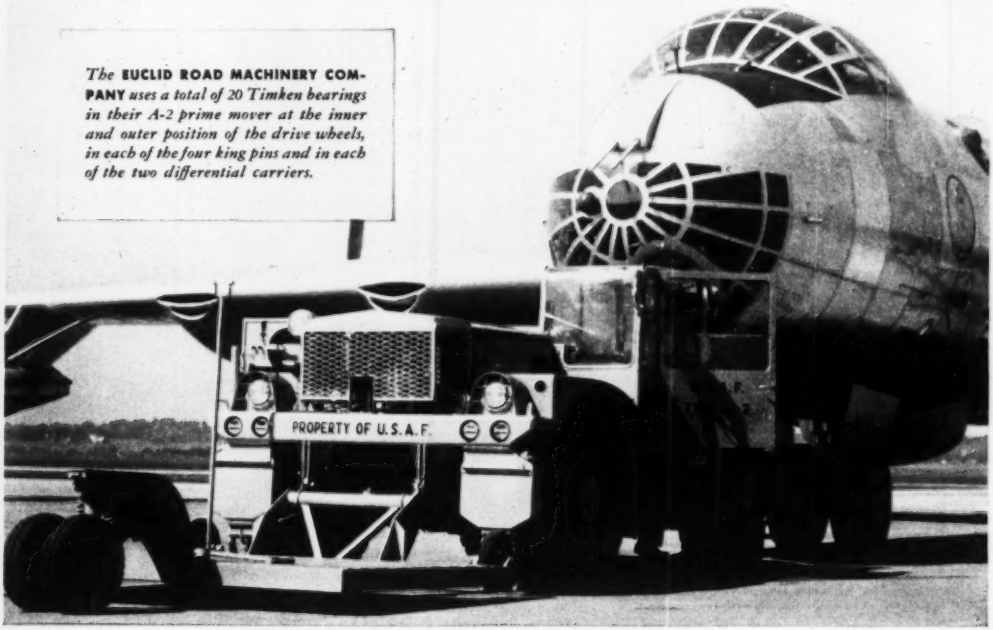
Because of line contact between rollers and races, Timken bearings have extra load-carrying capacity. Their tapered construction enables them to take radial and thrust loads or any combination. Shafts are held in rigid alignment, thus reducing wear, minimizing maintenance.

The incredibly smooth surface finish and true rolling motion of Timken bearings practically eliminate friction. Because they're engineered for the job, precision manufactured, and made of Timken fine alloy steel, Timken bearings normally last the life of the machine.

No other bearing gives you *all* the advantages you get with Timken tapered roller bearings. Whether you build or buy, make sure you insist upon them for your equipment. Always look for the trade-mark "Timken" on every bearing. The Timken Roller Bearing Company, Canton 6, Ohio. Canadian plant: St. Thomas, Ontario. Cable address: "TIMROSCO".

This symbol on a product means its bearings are the best.

The **EUCLID ROAD MACHINERY COMPANY** *uses a total of 20 Timken bearings in their A-2 prime mover at the inner and outer position of the drive wheels, in each of the four king pins and in each of the two differential carriers.*



FINISHED TO CLOSER TOLERANCES

Finishing to incredible smoothness accounts for much of the precise, smooth rolling performance of Timken bearings. This honing operation is typical of the amazingly accurate manufacturing methods at the Timken Company.

The Timken Company is the acknowledged leader in: 1. advanced design; 2. precision manufacturing; 3. rigid quality control; 4. special analysis steels.

TIMKEN

TAPERED ROLLER BEARINGS

NOT JUST A BALL — NOT JUST A ROLLER — THE TIMKEN TAPERED ROLLER BEARING TAKES RADIAL AND THRUST LOADS OR ANY COMBINATION